

MGIPC—SI—6 AR/54—7-7-54—10,000.

JOURNAL
OF THE
BATH AND WEST AND SOUTHERN
COUNTIES SOCIETY

FOR THE
ENCOURAGEMENT OF
AGRICULTURE, ARTS, MANUFACTURES AND COMMERCE.

ESTABLISHED 1777.

SIXTH SERIES.

VOL. II.

1927-1928.


WORK AND LEARN.

LONDON :
EDWARD STANFORD, LD., 12 TO 14, LONG ACRE, W.C.2.
1928.

[All rights reserved.]

Price to Non-Members Six Shillings and Sixpence.

COOPER



McDOUGALL & ROBERTSON

Makers of a complete range of Sheep Dips including
Cooper's Dipping Powder and McDougall's Paste and Liquid
Dips. Also Worm Tablets for Sheep. Arsenical for Foot Rot
Kerol the guaranteed all purpose Disinfectant etc.

== BERKHAMSTED ==



**543 SHOULDER
PNEUMATIC SPRAYER**

Capacity 1 1/2 gall
Price 58/-

"Martsmith" SPRAYING SPECIALITIES

FOR ALL SPRAYING & LIME-WASHING

One of the chief advantages of these
Pneumatic Machines is that the pump-
ing is done before spraying commences,
leaving both hands free to manipulate
the spray nozzle. When the container
is charged with compressed air the
sprayer will then automatically dis-
charge the whole of its contents without
re-pumping.

CONNAUGHT MACHINE—A real good
sprayer for lime-washing or spraying.
We have made a quantity for the
Royal Botanical Gardens, Kew, which
is a recommendation in itself.



CONNAUGHT MACHINE

Capacity 18 gall.
Price (without Gauge)...£15
" (with Gauge)...£16/10

WRITE FOR CATALOGUE.
OLDEST SPRAYING FIRM

ALL MACHINES IN STOCK
Established 1800 A.D.

MARTINEAU & SMITH,

Holloway Head, BIRMINGHAM.

CONTENTS.

VOLUME II.—SIXTH SERIES. 1927-1928.

	PAGE
I. Council and Officers of the Society	1
II. Lucerne By H. C. Long, B.Sc.	7
III. Modern Methods of Weed Eradication By S. L. Bastin.	17
IV. Liability of Occupiers By D. Meston.	36
V. Liver Rot and its Control By C. L. Walton, Ph.D., and W. Rees Wright, M.Sc.	43
VI. Insect Pests of Tomatoes and Chrysanthemums By H. W. Miles, M.Sc.	61
VII. Manuring of Sugar Beet By B. Thomas, M.Sc.	89

CONTENTS—*Continued.*

	PAGE
VIII. The Improvement of Poor Pastures	109
By T. Wallace and W. Ling.	
IX. The Society's Exhibition at Bath	133
By F. H. Storr.	
X. The Society's Dairy Department at Bath	138
By A. F. Somerville.	
XI. The Forestry Section at Bath	148
By J. Lipscomb.	
XII. Agricultural Education and Research at Bath	154
By H. M. Cundall, I.S.O., F.S.A., and A. L. Hobbhouse.	
XIII. The Exhibition of Cider at Bath	166
By E. W. Farwell.	
XIV. Small Holders' Competitions at Bath	170
XVI. Annual Report on the Society's General Operations	172
By F. H. Storr.	

CONTENTS—Continued.

	PAGE
XVI. The National Fruit and Cider Institute	177
Introduction.	
Advisory Report.	
By B. T. P. Barker, M.A.	
Trial Cider and Perry Orchards	192
By B. T. P. Barker, O. Grove and P. T. H. Pickford.	
Cider Making Trials for 1926-27	210
By O. Grove.	
Strawberry Investigations	221
Progress Report	
The Relations of Scion and Rootstock	235
By B. T. P. Barker.	
Observations upon the Influence of Scion Variety on Root Growth of Apple Trees	245
By T. Swarbrick.	
XVII. Annual Report of Consulting Chemist	253
By Dr. J. A. Voelcker, M.A., F.I.C.	

CONTENTS—Continued.

ILLUSTRATIONS.

	PAGE
<i>Liver Fluke, Limnaea Truncatula, etc. Plates I—I V</i>	48
<i>Insect Pests. Fig. 1—17</i>	64
<i>Sugar Beet, Manuring of</i>	96
<i>Root Growth of Young Apple Trees</i>	96

CONTENTS—*Continued.*

APPENDIX.

BATH MEETING.		PAGE
Judges	.. .. .	i
Awards	.. .. .	iv
Objects of the Society and terms of Membership	.. .. .	cxvii

DORCHESTER MEETING, 1928.

Donors of Money Prizes, etc.	.. .. .	cxix
List of Prizes for Stock, Produce, etc.	.. .. .	cxviii
Judges and Prizes for Poultry	.. .. .	cliii
Conditions and Regulations	.. .. .	clvi

FINANCE.

Summary of Cash Account to December 31st, 1927	.. .. .	clxviii
Annual Cash Account	.. .. .	clxx
Assets and Liability Account	.. .. .	clxxx
Financial Result of Bath Show	.. .. .	clxxxi
List of Members	.. .. .	clxxxii
INDEX	.. .. .	cciv

" He that goes about to forward agricultural improvement must begin by finding out the true reason of what is called routine, or ' the custom of the country.' It sometimes happens that these reasons are only accidental, and then you may dismiss them fearlessly ; but often it turns out that every-day practice rests on a solid foundation of facts ; and then if you make an onslaught on local prejudices, they will be sure to beat you."

' The true course of the agricultural improver is, to take one step at a time, to gain a clear insight into facts by experience, not to try to go too fast, and to trust to the work of time "

It practice which sets up to do without theory is contemptible, theory without practice is foolhardy and perfectly useless."—*From the Rural Economy of England, Scotland and Ireland,* by LEONCE DE LAVERGNE.

Journal Communications should be addressed to the Editor,
3, Pierrepont Street, Bath.

LIST OF OFFICERS,

1927-28.

PATRON.

HIS MOST GRACIOUS MAJESTY THE KING.

PRESIDENT.

LIEUT.-COL. LORD WYNFORD, D.S.O., Wynford House, Maiden Newton,
Dorchester, Dorset.

TRUSTEES.

*BATH, THE MARQUIS OF, K.G., Longleat, Warminster.

NAPIER, H. B., Long Ashton, Bristol.

VICE-PRESIDENTS.

ASHCROFT, W.	13, The Waldrons, Croydon
*BATH, THE MARQUIS OF, K.G.	Longleat, Warminster
BENYON, J. HERBERT	Englefield House, Reading
*BLEDISLOE, LORD, K.B.E.	Lydney Park, Gloucester
*BLYTHSWOOD, LORD	Blythwood, Renfrew
*BOLES, LT.-COL. SIR DENNIS F., BART., C.B.E., D.L.	Watts House, Taunton
*BUTE, THE MARQUIS OF	The Castle, Cardiff
*CLARENDON, THE EARL OF	The Grove, Watford
*CLINTON, LORD	Heanton Satchville, Dolton, N. Devon
*CORNWALLIS, LORD, C.B.E., D.L.	Linton Park, Maidstone
CUNDALL, H. M., I.S.O., F.S.A.	4, Marchmont Gardens, Richmond Hill, Surrey
DIGBY, MAJOR LORD, D.S.O., M.C.	Coldstream Guards, Minterne, Cerne Abbas
FALMOUTH, VISCOUNT	Tregothnan, Truro
HAMBLEDEN, VISCOUNT	Greenlands, Henley-on-Thames
MOBHOUSE, RIGHT HON. H.	Hadsden House, Castle Cary
MOORE STEVENS, COL. R. A.	Bellenden, Exeter
MOUNT EDGCUMBE, THE EARL OF	Mount Edgcumbe, Devonport
NAPIER, H. B.	Long Ashton, Bristol.
NEVILLE GRENVILLE, R.	Butleigh Court, Glastonbury

. Those to whose names an asterisk (*) is prefixed have filled the office of President.

VICE-PRESIDENTS—continued.

NOETHUMBERLAND, DUKE OF	.	.	.	Albury Park, Guildford
POLTIMORE, LORD	.	.	.	Court Hall, North Molton, Devon
*RADNOR, THE EARL OF	.	.	.	Longford Castle, Salisbury
SHELLEY, SIR J., BART.	.	.	.	Shobrooke Park, Crediton
SOMERVILLE, A. F.	.	.	.	Dinder House, Wells
STRACHIE, LORD	.	.	.	Sutton Court, Pensford, Somerset
TEMPLE, EARL	.	.	.	Newton St. Loe, Bristol
WYNFORD, LT.-COL. LORD, D.S.O.	.	.	.	Wynford House, Maiden Newton, Dorset

THE LORD WARDEN OF THE STANNERIES.

THE SECRETARY AND KEEPER OF THE RECORDS OF THE DUCHY OF
CORNWALL

THE RECEIVER-GENERAL OF THE DUCHY OF CORNWALL.

* * * Those to whose names an asterisk (*) is prefixed have filled the office of
President.

MEMBERS OF COUNCIL.

3

EX-OFFICIO MEMBERS.

THE PATRON.
THE PRESIDENT.

THE VICE-PRESIDENTS.
THE TRUSTEES.
THE TREASURER.

ELECTED MEMBERS.

WESTERN DIVISION (DEVON AND CORNWALL).

(12 Representatives.)

Elected in 1926.

Name.	Address.
ACLAND, RT. HON. SIR F. DYKE, Bart.	Killerton, Exeter
BUCKINGHAM, REV. PREB.	Leigh House, Manston Terrace, Exeter
GIBBS, MAJOR A. H.	Pytze, Clyst St. George, Exeter
KINGWELL, H. J.	Bow Grauge, Totnes Devon
SHELLEY, J. F.	Posbury House, Crediton
WILLIAMS, JOHN	Scorrier House, Scorrier, Cornwall

Elected in 1927.

Name.	Address.
BOSCAWEN, REV. A. T.	Ludgvan Rectory, Long Rock, R.S.O., Cornwall
CAVE, E. C.	Pacombe, Sidford, Sidmouth, Devon
DAW, J. E.	4, Louisa Terrace, Exmouth
IMBERT-TERRY, F. B.	Blue Hayes, Broadclyst, Devon
LOPES, SIR HENRY Y. B., Bart.	Maristow, Roborough, South Devon
MARTYN, G.	Liskeard, Cornwall

CENTRAL DIVISION (SOMERSET, DORSET, AND WILTS.)

(24 Representatives.)

BEAUCHAMP, SIR F. B.	Woodboro' House, Pease down St. John, Bath
BRUFORD, R.	Nerrols, Taunton
CLIVE, CAPT. E. A. B.	South Brympton, Yeovil
FOLKESTONE, VISCT.	Longford Castle, Salisbury
GIBSON, J. T.	Warren House, Wington
HOBHOUSE, A. L.	Hadsen House, Castle Cary, Somerset
LIFSCOMB, G.	Claverton Lodge, Bathwick hill, Bath
MILES, LIEUT.-COL. SIR C., Bart.	Manor House, Walton-in-Gordano, Clevedon
NICHOLS, G.	Demerara House, Colston Avenue, Bristol
PASS, MAJOR A. D.	Manor House, Wootton Fitzpaine, Charmouth, Dorset
PEARCE, T. H.	Parsonage Farm, Long Ashton, Bristol
SANDERS, LIEUT.-COL., THE RIGHT HON. SIR R. A., Bart., M.P.	Bayford Lodge, Wincanton

FARWELL, MAJOR E. W.	Hylton Estate Office, Kilmersdon, Bath
GORDON, G. H.	The Barn House, Sherborne, Dorset
HILL, MAJOR V. T.	Woodspring Priory, near Weston-super-Mare
HOARE, SIR H. H. A., Bart.	Stourhead, Zeals, S.O., Wilts
KNIGHT, S. J.	Buckingham Lodge, Keynsham, Bristol
KNOLLYS, C. R.	Richmond Lodge, Richmond Hill, Bath
POPHAM, H. L.	Hunstrete House, Pensford, Bristol
RAWLENCE, E. A.	St. Andrew's, Salisbury
RAWLENCE, G. N.	Salisbury
SHAW, COL. F. S.	Kennedy, C.B.E. Teffont Magna, Salisbury
WATSON, CAPT. THE HON. T. H.	Cornistorn, Milverton, Somerset
WHITE, A. R., O.B.E.	Charnage, Mere, Wilts

SOUTHERN DIVISION (HANTS, BERKS, OXON, BUCKS, MIDDLESEX, SURREY,

SUSSEX AND KENT.)

(12 Representatives.)

BATHURST, SIR F. H., Bart., D.S.O.	Somborne Park, Kings Somborne, Hants.
BENYON, H. A.	Upton Court, Reading
COBB, R. L.	Watlynge, nr. Rochester
JERVOISE, MAJOR F. H. T.	Herriard Park, Basingstoke
SUTTON, E. P. F.	Sidmouth Grange, Earley, Berks.
THOMAS-STANFORD, C.	Preston Manor, Brighton

ISMAY, J. H.	Iwerne Minster, Blandford
LLEWELLYN, CAPTAIN L. T. E.	Hackwood, Basingstoke
LYMINGTON, VISCOUNT	Old Manor Farm, Ellisfield, Basingstoke
ORDE POWLETT, HON. N.A.	Bolton Hall, Leyburn, Yorkshire
WARD, R. BRUCE	Godinton, Ashford, Kent

NORTH-WESTERN DIVISION (WORCESTERSHIRE, GLOUCESTERSHIRE, HEREFORDSHIRE, MONMOUTHSHIRE AND WALES).

(10 Representatives.)

BINF, CAPT. W.	Vivod, Llangollen
FOX, R. A.	Yate House, Yate, Glos.
MASTERS, A.	Church Farm, Rudgeway, Glos.
MASON, F. F.	Swansea
STORRAR, J. I.	Tredegar Estate Office, Newport, Mon.
ACKERS, C. P.	Huntley Manor, Glos.

ALEXANDER, HUBERT	5, High Street, Cardiff
DRUMMOND, COL.	Cawdor Estate Office, Carmarthen
PRICE, SIR F., Bart.	The Rectory Farm, Streatley, Berks.
SWANSEA, LORD, D.S.O.	Caer Beris, Bulith, Breconshire

WITHOUT REFERENCE TO DISTRICT DIVISION.

(8 Representatives.)

BANFORD JOSEPH	Leighton Iron Works, Uttoxeter
DREW, W.	Albion Iron Works, Leigh Lancashire
GIBBS, COL. W. O.	Home Farm, Barrow Gurney
GRAHAM CLARKE, CAPT. J. E. H.	Procester Manor, Stonehouse, Glos.

BEST, HON. J. W.	Hincknowle, Melpash, Dorset
FULLER, MAJOR R. F.	Great Chalfield, Melksham, Wilts.
POWLETT, A. T.	42, Milson Street, Bath
FRITCHARD, E.	Wood Hill Park, Wootton Bassett

STANDING COMMITTEES, 1927--28.(The **PRESIDENT** is an *ex-officio* Member of all Committees.)**ALLOTMENT.****BEST, CAPT W.,** *Chairman.*

BATH, MARQUIS OF, K.G.	CAVE, E. C.	SHELLEY, J. F.
BATHURST, SIR F. H.,	FOLKESTONE, VISCOUNT	WYNFORD, LIEUT.-COL.
Bart., D.S.O.	MASON, F. F.	LORD, D.S.O.
BEST, HON. J. W., O.B.E.	NAPIER, H. B.	

CONTRACTS.**NAPIER, H. B.,** *Chairman.*

BATH, MARQUIS OF, K.G.	DAW, J. E.	KINGWELL, H. J.
BATHURST, SIR F. H.,	FOLKESTONE, VISCOUNT	MASON, F. F.
Bart., D.S.O.	FOX, R. A.	PEARCE, T. H.
BEST, CAPT. W.		

DAIRY.**SOMERVILLE, A. F.,** *Chairman.*

CLIVE, CAPTAIN E. A. B.	LLEWELLYN, CAPT. L. T. E.	STRACHIE, LORD
GIBBS, MAJOR A. H.	MILES, LIEUT.-COL. SIR	VOELCKER, DR. J. A.,
GIBSON, J. T.	C., Bart	M.A.
KNIGHT, S. J.	RAWLENCE, G. N.	WHITE, A. R., O.B.E.

DISQUALIFYING.**THE STEWARDS OF LIVE STOCK AND PRODUCE.****EXPERIMENTS AND EDUCATION.****LORD BLEDISLOE, K.B.E.,** *Chairman.*

ACKERS, C. P.	HANLEY, DR. J. A.	RAWLENCE, E. A.
CUNDALL, H. M., I.S.O.	HOBHOUSE, A. L.	SOMERVILLE, A. F.
F.S.A.	ISMAY, J. H.	SUTTON, E. P. F.
DAW, J. E.	LIPSCOMB, G.	VOELCKER, DR. J. A., M.A.
FARWELL, MAJOR E. W.	NAPIER, H. B.	WALLACE, CAPT. T.,
GIBSON, J. T.	POWLETT, A. T.	M.Sc., M.C.

(With power to add to their number.)

FINANCE.**NAPIER, H. B.,** *Chairman.*

DAW, J. E.	GIBBS, MAJOR A. H.
-------------------	---------------------------

FORESTRY.**LIPSCOMB, G.,** *Chairman.*

ACKERS, C. P.	DRUMMOND, COL. F. D. W.	NAPIER, H. B.
BEST, HON. J. W., O.B.E.	C.B.E.	ORDE POWLETT, HON.
BLEDISLOE, LORD, K.B.E.	FOLKESTONE, VISCOUNT	N. A.
CLINTON, LORD	HOARE, SIR H. H. A., Bart.	

IMPLEMENT REGULATIONS.

BATH, MARQUIS OF, K.G., *Chairman.*

BAMFORD J.	BEST, HON. J. W., O.B.E.	MARTYN, G.
BATHURST, SIR F. H.,	DREW, W.	MASON, F. F.
Bart., D.S.O.	FOLKESTONE, VISCOUNT	NAPIER, H. B.
BEST, CAPT. W.		

JOURNAL.

C. R. KNOLLYS, *Chairman.*

ACLAND, RT. HON. SIR F. D., Bart.	LIPSCOMB, G.
-----------------------------------	--------------

JUDGES' SELECTION.

WYNFORD, LIEUT.-COL. LORD, D.S.O., *Chairman.*

ALEXANDER, HUBERT	MASON, F. F.	NAPIER, H. B.
BATHURST, SIR F. H.,	MILES, LIEUT.-COL. SIR	SHAW, COL. F. S.
Bart, D.S.O.	C., Bart.	KENNEDY, C.B.E.
GORDON, G.	MOORE-STEVENS, COL.	SHELLEY, J. F.
HOARE, SIR H.H.A., Bart.	R. A.	STORRAR, J. I.

RAILWAY ARRANGEMENTS AND ADVERTISEMENTS.

HOARE, SIR H. H. A., Bart., *Chairman.*

ALEXANDER, HUBERT	DAW, J. E.	MASON, F. F.
BATHURST, SIR F. H.,	DREW, W.	NICHOLS, G.
Bart., D.S.O.	FOX, R. A.	SHELLEY, J. F.
BLEDISLOE, LORD, K.B.E.		

(With power to add to their number.)

SELECTION.

THE CHAIRMEN OF ALL OTHER COMMITTEES.

SHOW PLACE AND DATE.

CHAIRMAN OF THE ALLOTMENT, CONTRACTS, DAIRY, FINANCE, FORESTRY,
IMPLEMENT REGULATIONS, RAILWAY ARRANGEMENTS.
EXPERIMENTS AND EDUCATION, AND STOCK PRIZE SHEET COMMITTEES.

(With power to add two Local Members to their number.)

STOCK PRIZE SHEET.

WYNFORD, LIEUT.-COL. LORD, D.S.O., *Chairman.*

ALEXANDER, HUBERT	HOARE, SIR H. H. A.,	SHAW, COL. F. S.
BATHURST, SIR F. H.,	Bart.	KENNEDY, C.B.E.
Bart., D.S.O.	KINGWELL, H. J.	SHELLEY, J. F.
BRUFORD, R.	MASON, F. F.	STORRAR, J. I.
GIBBS, MAJOR A. H.	MILES, LIEUT.-COL. SIR	SUTTON, E. P. F.
GIBBS, COL. W. O.	C., Bart.	WHITE, A. R., O.B.E.
	MOORE-STEVENS, COL.	
	R.A.	

WORKS.*Chairman.*

BATH, MARQUIS OF, K.G.
 BATHURST, SIR F. H., Bart., D.S.O.
 BEST, CAPT. W.
 CAVE, E. C.

FOLKESTONE, VISCOUNT.
 MASON, F. F.
 NAPIER, H. B.

Stewards.

Cattle, Sheep, Goats and Pigs.
 SHELLEY, J. F.
 MILES, LIEUT.-COL. SIR C., Bart.
 STORRAR, J. I.

Cider.
 FARWELL, MAJOR E. W.

Dairy.
 SOMERVILLE, A. F.
 GIBBS, MAJOR A. H.

Education.
 CUNDALL, H. M. (I.S.O., F.S.A.)
 HOBHOUSE, A. L.

Experiments.
 ACKERS, C. P.

Finance.
 NAPIER, H. B.
 DAW, J. E. GIBBS, MAJOR A. H.

Forage.
 KINGWELL, H. J.

Forestry.
 LIPSCOMB, G.

Horses.
 WYNFORD, LIEUT.-COL. LORD, D.S.O.
 HOARE, SIR H. H. A., Bart.
 ALEXANDER, HUBERT.

Horticulture.
 BOSCAWEN, REV. A. T.

Music.
 CUNDALL, H. M. (I.S.O., F.S.A.).

Poultry.
 BRUFORD, R.

Shoeing.

Yard.
 BEST, CAPT. W.
 BATHURST, SIR F. H., Bart., D.S.O.
 FOLKESTONE, VISCOUNT.

Society's Representatives on Governing Bodies and Committees.

Royal Agricultural College, Cirencester—FOLKESTONE, VISCOUNT.

Dauntsey School Foundation—WHITE, A. R., O.B.E.

National Fruit and Cider Institute—NAPIER, H. B., ACKERS, C. P.

Sugar Beet Growers' Society—ALEXANDER, HUBERT.

South Eastern Agricultural College, Wye—ASHCROFT, W.

Dairy Research Committee of University College, Reading—SOMERVILLE, A. F.

Agricultural Education Committee of Wilts County Council—WHITE, A. R., O.B.E.

Permanent Officials.

Treasurer—LUTTRELL, C. M. F.

Secretary and Editor—STORR, F. H., O.B.E.

Assistant Secretary—SMITH, W. A.

Auditor.
 GOODMAN, F. C. (F.C.A.) (Chartered
 Accountant)
Consulting Chemist.
 VOELCKER, DR. J. A. (M.A., F.I.C.)

Veterinary Inspector.
 MALE, G. P., M.R.C.V.S.
Superintendent of Works.
 AYRE, H. C.

Original Articles and Reports.

II.—CULTIVATION OF LUCERNE.

By H. C. Long. B.Sc. (Edin.)

The Conference on the cultivation of lucerne which was held at the Rothamsted Experimental Station in January, 1926, served to bring before English farmers in a very definite manner the importance of this remarkable crop plant. Not only did various speakers at the Conference bring out clearly the great value that lucerne ought to be to British agriculture, and the wonderful success which some farmers had made of it, but one might suggest that they showed equally clearly the various difficulties with which farmers are faced in securing a stand and bringing the crop to maturity. It is now a couple of years since the Conference was held; and lucerne has proved of such outstanding merit and value in many parts of the world, that it may be helpful to discuss here the general question of its importance and the various conditions which go to ensure success in growing it.

Lucerne or alfalfa (*Medicago sativa*) is an oriental plant, probably native to South-west Asia from Mesopotamia northward across Persia and Turkestan to Siberia. The best authorities agree that it is likely that it originated in what is now Persia. The word 'alfalfa' is possibly arabicized Persian, meaning 'horse fodder.' When the Arabs came into possession of the plant they gave it an Arabic form of its Persian name—Aspasti—(to eat). The name 'Lucerne' became attached to the plant in France and England. Some writers attribute it as after the Swiss canton and lake of Lucerne, but the American authority Coburn says that "the plant was long cultivated in France and England before making its way to the vicinity of Lucerne." He considers the name to have been derived from the Spanish and French through such changes as userdas and lizerne. McCreath states that in the South of France the name is *laouzerdo*, a corruption of the old Catalan name userdas.

Wing suggests that the 'grass' which was eaten by Nebuchadnezzar when he was driven from among men was probably alfalfa,

and that it was this simple and nutritious diet which renewed the bodily health and vigour of a hitherto pampered and debauched lunatic !

Lucerne Abroad.—One need scarcely give in detail the acreage of lucerne which is grown in other countries, but it is worthy of remark that in various parts of the Empire, and in certain foreign countries, the cultivation of lucerne has progressively increased for many years past. In 1895, for example, it was computed that the area of lucerne in Argentina amounted to 1,775,000 acres, and the figure steadily increased without a break until in 1916 it was no less than 18,818,000 acres, while the latest figures available indicate that in 1923-24 it had further risen to 19,290,000 acres, which is considerably in excess of the acreage devoted to wheat*. It must be regarded as intensely true that lucerne is the basis of Argentina's meat and corn production.

In the United States the area of lucerne grown for hay in 1919 was put at 8,629,000 acres, an area which increased every year, until in 1925 it was 11,040,000 acres, showing that it occupies a great position in the national farming system.

In Canada a far smaller area of lucerne is grown, probably owing to climatic conditions, but here again the area devoted to this crop has steadily increased from 1910, when it was 56,818 acres, until 1924, when it was 473,507 acres.

In France the area devoted to lucerne has for many years past been round about 2,500,000 acres. Many countries do not appear to distinguish lucerne separately in agricultural statistics, including it under the general heading of forage crops, but it is well known that it is extensively grown in various European countries. On the whole lucerne may be held as having won a position which has made it the most valuable fodder crop in the world.

It is of interest to note here that, according to Lochner, German farmers are giving special attention to lucerne as a means of improving their position, recognising that it has already often been the saving of many farms, and should be one of the bases of agriculture. It is held that no other plant is known which will yield so considerable a harvest of nutrients and minerals ; that lucerne adds

* The area of wheat in 1923-24 was, in round figures, 17,215,000 acres, but the *Almanaque del Ministerio de Agricultura* for Argentina, 1927, gives the area of wheat as 19,089,000 acres. A *Report on the Financial, Commercial, and Economic Conditions of the Argentine Republic*, September, 1925, published by the Department of Overseas Trade, observes that lucerne occupied approximately 37 per cent of the cultivated area, while wheat occupied 29 per cent, and all grains 58 per cent.

far more humus to the soil than red clover, while its exceptionally large and deep root development tends to much greater soil improvement; that it comes to the mower in the spring some weeks earlier than red clover, and after cutting renews its growth sooner and matures more rapidly; that the belief that lucerne will not stand a hard winter and inclement weather as well as red clover is only partly justified, since some varieties (*e.g.* Turkestan) are more hardy than red clover; that for horses lucerne is at least as good a food as oats, and ought largely to replace oats; and that it is not too much to say that lucerne is fitted more than any other crop to reduce the imports of concentrated feeding stuffs which are so costly to agriculture, and to ensure the support of live stock on home produced foods.

Lucerne in England and Wales.—When one considers the steady increase in the area devoted to this crop in the countries cited, as well as in other parts of the world, it cannot but be held as remarkable, that the figure of 44,200 acres for England and Wales in 1927 was extraordinarily small, while it was at the same time lower than for twenty years past. This area, by the way, is only about two-thirds of what it was in 1924, when the area was 64,615 acres, after a steady rise from the year 1920.

It is deserving of notice that in the last three years the area of lucerne grown in England and Wales has declined as follows:—1925, 54,020 acres; 1926, 46,975 acres; 1927, 44,200 acres. The difference between 1925 and 1926 was 7,045 acres, and the 1926 figure was 3,228 acres (or 6.4 per cent) below the 10-year average. The further reduction of 2,775 acres in 1927 was 6 per cent below the previous year, and 31.6 per cent below 1924. At the time of writing the latest county figures available are those for 1926, in which year the only counties growing over 1,000 acres of lucerne were Essex (11,551 acres), Kent (7,980 acres), Suffolk (5,960 acres), Norfolk (4,692 acres), Herts (2,525 acres), Lincs. (1,821 acres), Cambs. (1,395 acres), and Berks. (1,090 acres). In every one of these cases there was a reduction compared with 1925.

Value of Lucerne.—This crop is of very great importance because: (a) It is a perennial which produces a large quantity of a valuable fodder in at least three crops a year for several years (5 to 8), and is a highly relished food for all classes of stock; (b) Its deep root system and nitrogen-fixing capacity make it a great soil improver by the addition of humus and nitrogen, and by improving the texture and drainage*; (c) As a long-term arable crop it will

* Mr. Christopher Turnor states that in one field, after five effective years of lucerne, he has taken eight consecutive crops (6 cereal and 2 root crops) without giving any nitrogenous manure.

assist farmers to meet conditions of dear labour, and lower the cost of production of milk, corn, and meat ; (d) It is a reliable standby in a year of drought ; (e) It should enable more stock to be kept ; (f) It has a great capacity for suppressing weeds in its earlier stages, and if not allowed to stand too long will leave the land clean for cereals ; (g) It may be included in small quantity (2 or 3 lb.) in mixtures for permanent pasture.

Composition.—Lucerne is a fodder crop rich in protein, and may usefully be compared with red clover and “ seeds ” hay, as follows :

		Dry matter.	Ash.	Oil.	Digestible.			Starch Equivalent.
					Pure protein.	Crude protein.	Carb. & Fibre.	
Lucerne								
(green fodder)	..	24	2.3	9.4	1.7	3.2	9.2	9.1
Red Clover								
(green fodder)	..	19	1.6	0.5	1.7	2.5	9.3	10.2
Lucerne Hay	..	84	7.3	1.1	8.1	12.1	32.4	32
Red Clover Hay	..	83.5	6.0	1.7	5.5	8.5	37.3	38
Seeds Hay	..	86.0	6.3	1.2	3.6	6.2	35.2	29
Meadow Hay (good)	..	85.7	6.2	1.0	3.8	5.4	40.7	37

It will be seen that the lucerne is much richer in digestible proteins, both as green forage and in the form of hay, but the lower percentage of digestible fat and carbohydrates brings the starch equivalent below that of red clover. It is as a provider of protein that lucerne is so valuable, and its yield of protein per acre is very considerable.

Investigations and trials conducted at Wurzburg for five years, showed that the digestible crude protein in lucerne hay was 13.52 per cent, compared with 8.5 per cent in red clover hay and 5.4 per cent in meadow hay : a proportion of 2.5 : 1.58 : 1. Taking into consideration the further fact that the yields per acre were in the proportion 100 of lucerne hay to 75 of red clover hay and 60 of meadow hay, it was clear that the production of protein per acre was in the proportion of 4.2 : 2 : 1. Finally, lucerne lasts 5 to 8 years compared with red clover's 2 years. Lucerne is at its best just before the flowers open, and that is the time for cutting, especially for hay.

Conversion into Hay.—Considerable care is necessary in making lucerne hay, since it is, if anything, worse than clover in the ease with which it may be injured if it gets excessively dried before carting, much of the valuable leaf being lost. It should be cut rather before the flowers are open. Drying should be effected

with care, turning once or twice by hand, and carting should take place while the crop is still grey-green and dry without being too brittle to suffer serious loss of leaf. When cut from the stack lucerne hay should have as pleasant an odour as best clover hay, and will be attractive to and relished by horses, cattle, and sheep.

Use for Feeding.—Small strips of the crop may be cut from day to day for feeding, after some wilting, to horses, cattle, sheep, and pigs, and by the time the end of the field is reached it is likely that one may begin afresh, and so continue the operation a second and third time at least. It should never be fed wet. Cutting should begin directly the flower buds begin to show, so that the whole field may be used before flowering is complete. Cattle abroad are often tethered on lucerne, care being exercised to ensure that they are not too hungry at the outset, or they may suffer by getting hoven or “blown.” In the Channel Islands, France, and other countries, tethering of cattle on lucerne is regularly practised, to the great advantage of the milk yield. Both sheep and pigs may be folded on lucerne as in the case of clover, and will thrive exceedingly well on it. For some reason, however, lucerne does not stand grazing very well in England. It is possible that we do not manure it enough or cultivate it sufficiently to keep down weeds. When closely grazed grass is apt to overcome it. Further experience of grazing lucerne in England is desirable before one can be definite about its value.

Lucerne hay, as with clover hay, needs to be fed in conjunction with roots and starchy foods, owing to its high protein content.

While lucerne hay is very valuable for winter use, it should be emphasized that either as hay or green fodder lucerne may be regarded as a great saver of the cake bill. Mr. Christopher Turnor observes: “I have cut as much as 4 tons of hay to the acre, but I do not regard it as a hay crop, but rather as a home-grown substitute for cake; in fact during my dairying operations of many years it has certainly halved the cake bill. It is, therefore, uneconomic to regard lucerne hay as hay, and not to use it in the reduction of a heavy cake bill. This is a mistake which many farmers make.”

Lucerne Meal.—In recent years very considerable quantities of lucerne have been used for drying and conversion into meal, this being used as a poultry food, for which it is admirably suited and highly valuable. In this condition it may be bagged, shipped, and stored, and large quantities are prepared in the United States, South Africa, and elsewhere. For use the meal is soaked in water and mixed with cereal meals in suitable proportions.

Manuring.—Soil for lucerne should be in good heart, following, say, a heavily manured potato or root crop, which will also leave the land clean. If lime is wanting, 10 to 30 cwt. of ground lime may be applied in autumn. Otherwise, phosphates and potash are most in demand: on heavy land 5 to 10 cwt. of basic slag at the outset and 5 to 10 cwt. after two or three years; on light land 2 cwt. superphosphate and 1 cwt. sulphate or muriate of potash annually. Nitrate of soda at the rate of $\frac{1}{2}$ to 1 cwt. per acre has sometimes been helpful in establishing the crop, but it is unnecessary where the nodule-forming organism is active and the plant is growing strongly. Farmyard manure is valuable, particularly if ploughed in sometime before lucerne is taken. It may also prove valuable on occasion as a top dressing. The writer well remembers a field many years ago in Hertfordshire on which farmyard manure was applied to part of a poor stand of lucerne on a heavy soil: the dunged part was quickly well away, while the untreated part remained poor.

Soil and Sowing.—Lucerne is a perennial which grows very strongly when once established, and is commonly regarded as being then independent of surface moisture in terms of rainfall, or of drought as we know it, since it has an extensive root system which it sinks deeply into the soil in search of moisture—this being particularly true on the deep calcareous soils or marly loams which suit it best. The writer has seen in the museum of the Agricultural High School in Copenhagen a lucerne root approximately 18 ft. in length, and has been told of similar great lengths found in South Africa and elsewhere. It is, therefore, a great drought resister, but is widely regarded as unsuited to a moist climate, and it is probably for this reason that it has not yet established itself in the west and south-west of England. It should, however, be noted that although a dry climate is more suitable to its full growth, and it will not stand stagnant water, it can withstand a reasonable amount of moisture after it is once established. The reason why its cultivation has been less frequently attempted in the moister parts of the country than in the eastern counties is almost certainly due to the fact that continued wet weather when the plant is in the seedling stage is liable to kill a large part of it, and it is, therefore, less readily established in such districts. The crop, however, is so valuable that it is worth the utmost patience and care, and the making of more than one or two attempts in order to secure a stand.

Main Points.—The main points to be borne in mind to ensure successful cultivation of lucerne are (1) that the land should be of

fair depth (not shallow) and be well drained ; (2) that the soil should be in thoroughly good heart and be adequately furnished with lime ; (3) that the right nodule-forming organisms should be present to enable the plant to extract nitrogen from the air ; (4) that good seed be sown ; (5) that sowing should take place under conditions which are likely to lead to rapid germination and firm hold of the soil by the seedlings ; and (6) that once the crop has become well established there should be no hesitation in carrying out any necessary cleaning of the crop.

- (1) Considering these points in turn, it has become widely observed that lucerne is not partial to shallow soils, but does best on those which are of some depth, in which its extensive root system can secure a firm hold. It is, moreover, very important that drainage should be good, without chance of stagnant water near the surface.
- (2) It has long been recognised by all concerned that crops of all kinds "do" best on soil which is in good heart---fertile and thoroughly well prepared. Such a soil encourages rapid germination of the seed and quick growth of the plant. Lucerne seed is particularly favoured by a good tilth. It has also been noted in some cases that a strong and luxuriant growth of lucerne has been favoured by an application of dung, while land which has not been treated has done by no means well. An adequate lime content of the soil is particularly important, since lucerne, like sainfoin, is a lover of calcareous soils. It may be desirable, if not essential, to apply a good dressing of lime before lucerne will really do well, the more so since the nodule-forming organisms need lime for their proper development. Infertile, wet, acid soils cannot be expected to grow lucerne.
- (3) In some cases failure to grow lucerne may be due to the absence of the right nodule-forming organisms. A great deal of research work has been done in the endeavour to discover the best conditions of securing the presence of such organisms, which enable the fixation of atmospheric nitrogen to take place and ensure proper growth of the plant. The need for such organisms has long been known, and various attempts have been made to provide pure cultures for dressing the seed before sowing, with varying success. Work at Rothamsted has now determined a means by which pure cultures of the right

organism may be grown and successfully transported on a safe medium for treatment of the seed before sowing, in cases where "stands" of lucerne are difficult to obtain. It must suffice to state here that full particulars may be obtained from The Director, Rothamsted Experimental Station, Harpenden, Herts.

- (4) The seed to be sown should be of high purity and germination, and of good strain. The number of seeds in 1 lb. is in the neighbourhood of 205,000. Favoured types are Provence, Grimm, and Hungarian; Grimm and Canadian Variegated promise well for wet districts. Turkestan and Grimm are regarded as hardy. In most southern and south-eastern counties of England, Grimm and Provence are perhaps most favoured. When grown alone and drilled, 15 to 20 or 25 lb. of seed per acre are required. Broadcasting needs rather more seed, but is not very desirable unless the land is very clean, when it may be expected to cover the ground more quickly and tend to early suppression of weeds.
- (5) Lucerne is commonly grown alone. The seed should be sown while there is still a fair amount of moisture in the surface soil, but on a clean, firm, and finely prepared seed-bed. If sufficient lime is present this may be possible on some of the heavier soils, which must not be regarded as barred for lucerne growing. Excellent crops may be grown on quite heavy land if care is taken to secure a stand at the outset; many heavy land farms in Essex grow remarkably good crops of lucerne. If seed is sown on a moisture-exhausted soil, germination may take place but death of the seedlings may follow if dry weather supervenes. Similarly, the young plants may die out if long-continued wet weather is experienced before they are well grown and firmly established. Taken after thoroughly cleaned potatoes or roots, with the seed drilled alone about the middle or end of May after the land has been well prepared in spring, lucerne may be expected to get away well. Sowing may, however, take place rather earlier or later, and even as late as August after early potatoes, but such late sowing is not too likely to give time for the young plants to get well established before winter. The seed should be sown rather shallow, certainly under 1 inch deep, and be

well rolled in. When seed is drilled, the rows should be 9 to 12 inches apart, to facilitate cleaning, which it is most important should be very thorough until the crop is growing strongly, or it may be smothered with weeds. Once well established lucerne will largely suppress weeds until it begins to peter out.

In order to ensure a close covering as early as possible a few pounds of clover and grass seeds are sometimes sown with the lucerne, thus increasing the yield in the first year and aiding in the suppression of weeds. The simplest addition is perhaps 2lb. each of red clover and Italian rye-grass.*

If the land is very clean, lucerne may be sown in a thin nurse crop of spring corn, usually barley, but if so the corn must be regarded as secondary. In such a case the lucerne may derive useful shelter from scorching sun in its early stages, and if the subsoil water is sufficient the corn may help to keep the surface moist. Quite successful stands have often been secured in this way.

- (6) It is essential that lucerne should be kept very clean until thoroughly established and well grown, and this is more readily done when the seed has been drilled. There are often cases in which the "take" seems to be a poor one, though many diminutive plants may be established. A thorough harrowing or cultivating may do such a crop a world of good, and it is well recognised that quite drastic treatment of this kind will be very beneficial. The great thing is to destroy weeds and keep the surface soil open; the lucerne will not be injured.

After Treatment.—Once established lucerne may remain highly productive for any period between four and eight, or even ten years, and may be cut three or four times a year after the year of sowing. When mown the yield may be anything from 10 to 20 tons of green fodder per acre per annum. When mown for hay the yield may be reckoned as between 2 and 4 tons per acre. It may, of course, be partly hayed and partly used green, the earlier cuts being hayed. When grown for seed the yield may be expected to average about 8 bushels of 60 to 62 lb. each per acre.

If sown alone early in the spring lucerne may sometimes be cut for hay (not too closely) the same year, but in other cases, and when

* Similarly, a few lb. of lucerne seed may be included in a seeds mixture for permanent pasture.

sown with a nurse crop, a first cut may be taken the following spring. If cut in early June, before weeds have a chance to seed, so much the better. Two more cuts may be taken, as ready, during the summer. Cleaning must follow each cutting as may be necessary, it being borne in mind that treatment may be drastic with nothing but good to the crop. Heavy harrows or a cultivator may be used with advantage. In some cases a skim plough may be run between the rows in late autumn, stirring the soil a couple of inches deep and partly covering the plants. This will protect the plants during winter, and harrowing and rolling in spring will redistribute the soil.

In subsequent years as many as four cuts may sometimes be taken, especially if cut at the right time, before the buds burst and while still young, leafy and tender. The cuts may be fed green as fodder or be converted into hay, as may be desirable.

If lucerne be grazed, this should not be carried too far. If grazing is too close, or is continued late in the year the plant may suffer severely in winter.

If the land is in good condition when the seed is sown the only manuring likely to be required will be occasional applications of phosphates and potash, in accordance with apparent needs.

Cultivations to keep the crop clean, or the soil open, must be practised when necessary, as indicated above.

When lucerne begins to thin out, and weeds are no longer suppressed by its heavy growth, it will be time for it to be ploughed down for the taking of cereal crops, for which it is a first-class preparation.

REFERENCES.

- WING, J. E. *Alfalfa in America*. (Sanders Publishing Co., Chicago, 1909).
The Growing of Lucerne. Report of Rothamsted Conference, including papers read (E. Benn, Ltd., London, 1926).
 COBURN F. D. *Alfalfa*. (Orange Judd Co., New York, 1905).
 STEWART, G. *Alfalfa Growing in the United States and Canada*. (The Macmillan Co., New York, 1926).
 MINISTRY OF AGRICULTURE. Leaflet No. 160, 1923.
 LOCHNER, A. Der Luzernebau und seine betriebswirtschaftliche Bedeutung, *Mitt. d. Deutschen Landw.-Gesellschaft*, 8th Jan., 1927.
 WOOD, T. B. *Rations for Farm Stock*. Ministry of Agriculture, 1927.

III.—MODERN METHODS OF WEED DESTRUCTION.

By S. Leonard Bastin.

Amongst the many problems with which the British farmer has to deal there is no doubt that the destruction of weeds is of first class importance. So serious is the loss caused by weed growth, that the whole question of suppressing these unwanted plants is worthy of far greater consideration than is generally accorded to it. The matter is one calling for energetic action seeing that our common weeds are the very strongest in competition of all plants, and this for an interesting reason. In a geological sense it is not so long since Britain was joined to the continent of Europe and thus part of the Palaearctic Region (consisting of Europe and Asia) which is much the largest of the natural continents and is intersected by few insuperable barriers. Over this great area there has been, for ages, freedom of communication and the fiercest rivalry. Common knowledge teaches us that, in any race, the competition will increase with the number of the competitors and will diminish with artificial restrictions of any kind. European weeds have, after a struggle extending over an immense period of time, come out the first in the contest for place. Most of these weeds produce plenty of light seeds which are easily dispersed by wind. By far the greater number of them are hardy and able to endure great extremes of temperature. The majority of these weeds are self-fertilised or wind-fertilised or capable of being fertilised by almost any good sized insect. Small wonder that the Palaearctic has proved itself to be the most aggressive of all types. Neither does the matter end here, for these plants have proved to be the most excellent colonists. The weeds of Europe do not suffer when transported to other parts of the world but flourish and often drive out the native plants. Here are a few interesting examples by way of illustration. In Australia such European plants as the Bathurst Burr (*Xanthium spinosum*), the Noogoora Burr (*Xanthium strumarium*), the Spear Thistle, the Sweet Briar, and the Stinging Nettle have spread far and wide and often constitute a real plague. In New Zealand our Dock, Water-cress and Sow Thistle have increased to such an extent that special legislative measures have been adopted to deal with the pests. In the island of St. Helena it has been stated European weeds have proved so vigorous that the native vegetation has almost completely disappeared. Our

common annual grass (*poa annua*) grows in many parts of South America and there is hardly a part of the world where the Shepherd's Purse, as well as most of our common cornfield weeds, are not to be found. It has been stated on many occasions that the most troublesome weeds of Canada and the United States are of British origin. Strangely enough there is little reciprocity in this matter. Only very rarely does a foreign plant contrive to secure a real foothold in Europe. The seeds of many species are continually being brought over in ballast or wool and, for a season or two, these may grow but, with one or two exceptions, such as is the case with a species of ragwort of North American origin, none of these plants establishes itself as a weed. Even the most vigorous and hardy plants of the garden are quite unable to hold their own in competition with the native wildlings. Thus there is no doubt that the British farmer has, in the common weeds, resourceful and energetic enemies which can only be fought with success by the adoption of vigorous measures.

DAMAGE CAUSED BY WEEDS.

Every weed is to be regarded as an interloper for it is absorbing from the soil moisture and plant food which properly belong to the crop under cultivation. A vigorous weed growth round useful plants hampers the development of the latter in early life; often the weeds grow much more quickly than the crop and have a very serious smothering action. Weeds also stop a free circulation of air amongst the crop plants which, in the case of corn crops, may retard ripening. Climbing weeds, such as bindweed and cleavers, will much hamper the harvesting of corn crops as regards the cutting and drying. Always the presence of weed growth makes the thorough cultivation of land more expensive and difficult. Then a lusty weed growth mixed up with a crop will screen away light, and everything points to the value of free illumination in the case of all crops. It has been shewn that a strong light is fatal to the development of many fungoid diseases, especially those belonging to the mildew group, and weeds often harbour or encourage the development of insect and fungoid pests. Two illustrations of this may be given. Examine some plants of the Charlock (*Brassica sinapis*) in the early summer and it is extremely likely that they will be found to be attacked by the Turnip Fly (*Haltica nemorum*). Undoubtedly the pest finds sustenance on the Charlock at a time when the cultivated turnips are hardly at all in evidence. The Turnip Gall Weevil (*Ceutorhynchus sulcicollis*) is also quite commonly

found on the roots of the Charlock. Then the minute fungus (*Plasmodiophora Brassicae*) which is responsible for the disease known as Club-Root or Finger-and-Toe in Cabbages, Turnips, etc., is also very frequently found on the roots of Charlock.

The value of samples of cereals is reduced by the presence of the seeds of cockle, garlic, cleavers and wild vetch, and the same is true of all farm seeds when weeds are present. Some weeds like garlic taint the milk of cows which eat them whilst others such as meadow saffron and water hemlock are poisonous to stock generally. Again some weeds are parasitic or semi-parasitic, and typical examples are the dodder (*Cuscuta*), broomrape (*Orobanche*), and yellow rattle (*Rhinanthus crista-galli*). The damage done, especially in the case of the Dodder, is considerable for a single parasite will, in the course of barely three months, destroy clover or lucerne plants on an area of thirty square yards. The Yellow Rattle although only a partial parasite can do an immense amount of harm to pasturage. The plant attaches its roots to those of grass and, if it does not actually kill its host, it will have a very weakening effect on its growth. Cows dislike the plants and it is stated that if they should eat it the butter made from the milk which they give will have an unpleasant flavour. Owing to the reasons given above it is quite impossible to secure the best return from land when weeds are allowed to grow without check. Experiments have shewn that on a properly weeded area of arable land the crop may easily be double that of an unweeded area. To give an example in one case—mangolds grown under otherwise exactly the same conditions on the same field yielded $37\frac{1}{4}$ tons per acre where two hoeings down of weeds were given and only $16\frac{1}{4}$ tons where there was no hoeing after singling. Before the War it was estimated that about $16\frac{1}{2}$ million pounds sterling per year was lost by farmers in growing (and getting rid of) weeds. Owing to the higher cost of labour, seeds, etc., this figure must now be greatly increased. A great deal of this loss could be avoided if proper methods of preventing and eradicating weeds were adopted.

HOW WEEDS ARE SPREAD.

When one considers the efficient means of propagation which have been adopted by the common weeds it is not a matter for wonder that the distribution of the plants is so widespread. A single plant of Charlock will it is estimated be responsible for 4,000 seeds; a large Poppy plant may produce as many as 75,000 seeds whilst in the

case of the Shepherd's Purse the seed production is on an even greater scale. In addition it must be borne in mind that many of the common annual weeds like Chickweed and Groundsel manage to run through several generations in a year and each will produce a crop of seeds. With many of the perennial weeds propagation by seed is not the only method of increase. Take the case of the Creeping Thistle (*Cnicus arvensis*) which although it produces seeds spreads largely by means of underground stems. Then the ways in which weeds are distributed are usually cleverly planned in order to secure the widest possible dispersal. Before the suppression of weeds can be taken in hand in an intelligent manner it is essential that the farmer should understand the manner in which the plants obtain access to cultivated lands and the methods by which their distribution amongst crops is secured. The natural methods by means of which weeds are spread may be briefly summarised as follows.

Distribution by means of the Wind. Many seeds, like those of the poppy, are so small that they are readily blown away from the parent plant to a considerable distance. When the seeding heads are ripe small holes appear at the upper part and, through these, the seeds are shaken out as the heads sway in the wind. Seeds which are definitely designed for flying are numerous. Of these the Thistle may be taken as typical. The seeds are provided with an appendage of fluffy hairs and as a result they are rendered extremely buoyant. The seeds of the Dandelion have curious little devices like parachutes which delays their falling to the ground and during the interval they are carried by the breezes to a considerable distance. In some cases the seeds are adorned with wing-like devices as is seen in the case of the Dock. The flattened processes make a certain amount of gliding possible and before the journey is at an end the seed will probably have been carried well away from its starting point.

Distribution by means of Animals. The seeds of some weeds secure a wide distribution owing to the fact that these are enclosed in a covering adorned with hooks or some adhesive material which makes the object adhere to the coat of a passing animal. The seed vessels of the burdock, cleavers, wild carrot and corn buttercup are cases in point.

Distribution by Birds. Many weed seeds⁹ are eaten by birds and ejected with their germinating capacity unaffected and in this way they may be carried over a wide area.

Distribution of root-stocks. The dispersal of the root-stocks of some weeds is a common method of spreading the species. This is notably to be seen in the case of the Creeping Thistle, Couch Grass, etc. The broken fragments of the roots may be picked up by the hoofs of passing animals or even blown by the wind to new positions where they soon settle down and take root.

Apart from the purely natural methods of distribution indicated weeds are often introduced and dispersed in connection with the processes which are associated with farm work. Here are some of the occasions in which weed seeds or parts of weed plants are very likely to be in evidence.

Distribution by means of Farmyard manure. Screenings from threshing and winnowing machines and sweepings from barns and hay lefts often find their way to the manure heap, whilst manure from cattle fed on inferior hay is likely to contain weed seeds. Many seeds of weeds are quite uninjured by the heat from manure and will, in due course, pass on to the fields. In the case of some seeds germination may be even better after a time in the manure heap, or after passing through the stomach of an animal. If the manure is well rotted there will be fewer live seeds in it than if the material is fresh.

The Use of Impure Seed. This was a very common source of weed distribution at one time although nowadays when merchants take great care over the matter the danger is not so great as formerly ; still it is not always possible to eliminate all weed seeds. This is especially the case when they are similar in size to those of the beneficent plants. For example the seeds of the American Dodder (*Cuscuta Gronovii*) are almost exactly the same size as that of Lucerne seed and it is most difficult to separate the two by sifting. Happily most weed seeds are more easily removed. One cannot emphasise too strongly the harm which arises from imperfectly cleaned seed. The presence of 1 per cent of dock seed in a mixture of grass and clover seed means ten or more dock seeds per square yard all over the field wherever such a sample is sown at the ordinary rate of leys.

Farm Machinery and Implements. Machines such as self-binders and travelling threshing machines are often responsible for the wide distribution of weed seeds which are carried on the machines and also in the mud picked up by the wheels.

THE TASK OF PREVENTION AND SUPPRESSION.

As has been indicated weeds may be annual, biennial or perennial and, according to the habit of growth, so must the methods of fighting the pests be varied. Whatever methods are adopted should be carried out promptly and thoroughly; half-hearted measures are often of very little avail. Here are some of the most important steps which are indicated when the question of weed prevention and suppression is under consideration.

Prevention of Seeding. There is a world of truth in the old saying that "one year's weeding is seven years seeding." Many weeds produce seeds which do not all germinate at the same time and these may lie dormant in the ground and then, after several years, start into growth. In destroying weeds of this type it is an advantage if root and other crops which permit thorough cleaning are frequently introduced into the rotation. Weeds should be cut down before they have a chance to seed even though they may be growing by the roadsides and on waste patches at the corners of fields. It is well to allow the plants to develop their flowers before cutting off the leading shoots as, if these are removed at too early a date, other growths will develop and the whole operation will have to be repeated.

Use Cleaned Seed. Imperfectly cleaned seed should not, in any circumstances, be used, and an account of the advantages to be obtained under the Seeds Act, 1920, and the Seeds Regulation, 1922, is given below.

Ploughing, Cultivation and Hoeing. In the case of many weed seeds deep ploughing is a successful way of causing the seeds to rot. Other seeds however remain dormant under such conditions and will start into growth if, at a later date, they are brought nearer to the surface. Shallow cultivation and the preparation of a good tilth prior to the sowing of a crop will encourage the seeds to germinate and the seedlings are then destroyed by a further stirring of the soil. Such a method will largely clear the ground of many annual and biennial weeds such as poppy, charlock and thistles.

Perennial weeds such as couch, creeping thistle, etc., need special treatment. The plants spread largely by underground runners bearing buds and hence the object must be the complete removal of the root-stocks. This will usually be accomplished by shallow ploughing followed by grubbing or cultivating, rolling and harrowing. As a rule it is best to collect the weeds and burn them

or make them into a compost with lime. Now and again, as in fallowing, they may be brought to the surface and left so that the wind and sun destroy them.

The cutting down of perennial weeds in order to exhaust the food store in the root-stocks and prevent further storage is to be recommended. Cutting with the scythe, hoe or spade will destroy all weeds if the cutting is only repeated often enough. Of course many weeds if cut to the ground send up new stems but these are only produced at the expense of the stored food in the root-stocks. The growth of new stems seriously weakens the plants and if, when produced, the process of cutting is repeated a sufficient number of times total destruction will result no matter what the plant may be. Make the first cutting when a good growth has been made and before the plant has had a chance to flower and continue to cut during the growing season when new shoots appear.

Manuring and Liming. Much may be done to encourage the growth of useful plants and discourage weeds by the use of manures. The application of 5 to 8 cwt. of basic slag per acre to pastures on stiff clay land often has a wonderful effect in encouraging clovers and generally improving the herbage; to reduce such weeds as buttercups, daisies and plantains, a mixture of superphosphate and sulphate of ammonia is often very effective. Good manuring may so stimulate the growth of cultivated crops that the worst weeds are crowded out. This fact is worth noting in the case of successive corn crops. When farmyard manure is believed to contain weed seeds in any quantity it should be applied to land on which the weeds in question are not likely to do a great deal of harm. Thus manure containing the seeds of charlock or spurry could quite suitably be applied to permanent pastures.

Smother Crops. A very good way of suppressing weeds or at any rate of reducing their growth, is by planting of dense "smother" crops which will simply choke them out. On badly-infested land a smother crop will be of much value before a root crop. Suitable crops for the purpose are vetches or a mixture of vetches or peas with oats or rye with a few beans to be mown in the early summer. The crop can be used either green or made into hay or silage. Mustard, rape, and maize might also be employed as smother crops and the last named, which would however only be suitable for the southern counties, casts a specially dense shade.

Cleaning Crops. The growing of a root crop is a most important means of suppressing weeds. If possible the first cleaning operations

in connection with this crop should begin in the previous autumn as soon as the stubbles have been cleared. With a fine September and October the roots of couch and other perennial weeds can easily be dragged to the surface of the soil and then collected and burned. When the soil is light a cultivator will penetrate sufficiently deeply to drag out the weeds. In bad cases it is sometimes needful to take off two or three crops of weeds and the operations may have to be taken up again in the spring, but it pays to concentrate chiefly on the autumn cleaning as at no other time does the same amount of work yield such good results. Potatoes are to be regarded as one of the best cleaning crops and they are all the more useful because they are suited for light soils. Once potatoes have secured a good start there is not much chance for weeds to get a hold. Drumhead cabbages probably come next to potatoes as a cleaning crop. If planted out so that they can be scuffled in two directions they are easily kept clean in the early stages and, if well manured, their later growth is strong enough to cover the ground quickly. Mangolds are not so satisfactory a cleaning crop if the ground is very foul. Owing to the early date at which these must be sown there is little time for preliminary cleaning and as is well known growth in the early stages is somewhat slow and irregular. Even when well established the ground is not so well covered as would be the case with a crop of swedes or turnips.

Grazing. In pastures close grazing by sheep in the spring will often check such plants as ragwort, yellow rattle and knapweed. The grazing is all the more effective when it is combined with manurial treatment such as will encourage a vigorous growth on the part of the grasses.

Spraying. Spraying crops with chemical substances such as sulphate of copper (bluestone) and sulphate of iron has been found extremely useful in destroying weeds. Even if the weeds are not actually destroyed by the spraying they are usually badly crippled. It has been shewn that *Persicaria* and Spurry may be killed by spraying with a 4 and 5 per cent solution of sulphate of copper respectively; such weeds as poppy, corncockle, dock, groundsel, dandelion, sow thistle, coltsfoot, etc., are badly damaged and largely prevented from seeding if sprayed with a 5 per cent solution of copper sulphate or a 15 per cent solution of sulphate of iron. Spraying with a solution of sulphate of ammonia has also been tried (1 to 2 cwt. in 60 gallons of water per acre) and weeds stated to yield to this treatment include corn buttercup, spurry, ivy-leaved speedwell, charlock and wild radish. It is very important to

remember that most cultivated crops with the exception of wheat and oats and possibly barley and rye are damaged by spraying with sulphate of ammonia, which should never be sprayed on crops other than cereals and even then not when "seeds" have been sown with the corn.

THE BEST METHODS OF DEALING WITH CERTAIN WEEDS.

Within the limits of the present paper it is not possible to give complete details of the best means of preventing and suppressing weeds of all kinds. However, in the following list an attempt has been made to indicate the measures which should be taken in some typical cases. Any further details which may be needed can be obtained by application to the Ministry of Agriculture and Fisheries.

Broom-rape. The seeds of Broom-rape unlike those of the Dodder are barely ever found in samples of Red Clover. Broom-rape is rather intermittent in its appearance and is much more plentiful in some years than others. Whenever the plant is seen it should be pulled up even if there are only small patches, as is usually the case during the first year when the plant appears. If allowed to come to maturity the seeds will be scattered broadcast in large numbers. Clover should not be grown again on land that has been badly infested with Broom-rape. Manures which will encourage the growth of Clover and aid it in resisting the attack of the Broom-rape may be employed. For instance lime and potash manures may prove to be of considerable value. Red Clover when badly attacked by Broom-rape may be replaced by lucerne or sainfoin. The sowing of Italian Rye Grass with Clover has been found useful as this grows rapidly after the first cut and retards the growth of the Broom-rape.

Charlock. The chief means of fighting Charlock consists in preventing the introduction of the seeds and in mechanical treatment to destroy the young plants and in spraying. Care should be taken that seeds knocked out in carts during harvest are not conveyed to arable land but are collected and burned. With root crops horse and hand-hoeing may be relied upon to keep the Charlock in check. Fall-sown corn crops are not as a rule badly infested with Charlock and it proves most troublesome in the case of the spring-sown crops. If the field be harrowed and the sowing of the grain somewhat delayed a large proportion of the charlock seed will be induced to germinate and the seedlings may then be destroyed by harrowing. Highly successful results have attended spraying as a method of

destroying charlock. The rough leaves of the plant are peculiarly fitted for the retention of any poisonous substance which is brought into contact with them. A full description of the method to be employed may be found in the Society's Journal for 1924-25, Article I. Clover sown without a covering corn crop may be rather seriously injured by spraying unless a weak solution is used.

Coltsfoot. Quite often the eradication of this pest is neglected until wide areas of land are covered with the broad leaves. One very important step to take is to check seeding, and the plant should be spudded and hoed out whilst in flower. If this is thoroughly done many of the leaf-buds on the root-stock just below the surface are damaged or even destroyed. Continue the spudding and hoeing when the leaves appear early in the season and then again in the late summer. Drying the ground by means of drains also helps to kill Coltsfoot. In pastures the weed can be held in check by the application of nitrogenous manures, such as farmyard manure, nitrate of soda, etc., which encourage the grass and tall growing herbage. Deep ploughing with removal of the root-stocks is to be recommended on arable and the general amelioration of the soil by the application of lime, sand and ashes and long dung will help in the fight against this pest.

Corn Cockle. Endeavour to prevent seeding and this may be done in well grown corn crops by pulling the growing plants. If the weed is known to be plentiful the seeds may be encouraged to germinate by spring and autumn cultivation the young plants being finally destroyed by harrowing. It will also help in the case of severe infestation to abandon autumn-sown cereals for a time in favour of late-sown spring cereals, in which case the winter and late spring tillage will tend to destroy the young seedlings that have appeared. Short rotations will be a great help in getting rid of corn cockles and the cleaning of root crops will kill a great deal of the weed. Care should be taken that only pure grain is used and cereal crops intended for seed should be thoroughly cleaned of cockle. Corn cockle also grows freely amongst leguminous crops especially vetches and here the pest can be hand-pulled.

Corn Marigold. When seed grain is grown in a district where the corn marigold occurs great care should be taken to see that the seeds are absolutely free from weeds. It may also occur in samples of red clover and grass seed and the freedom of these seeds from the pest should be secured. Hand-pulling* of large plants which have become established is recommended and the thorough hoeing of two successive root crops in order to prevent the plant seeding

is helpful. All plants removed should be burned. Seeds which have fallen should be allowed to germinate and the young plants destroyed by surface cultivation. A good dressing of lime helps to discourage the corn marigold which rather favours soil with a deficiency in this respect.

Couch. All the kinds of couch grass are spread by means of seeds and every effort should be made to prevent the plants flowering and, as well, great care should be taken to secure grass seeds and seed-corn free from the seeds of these weeds. Hedgerows should especially be kept clean for the seeds of couch are freely distributed from plants growing in these positions. Then the creeping roots, or the small "bulbs" of the onion couch, will establish themselves in the margin of the fields from which position they will rapidly spread over a wide area of cultivated ground. Where couch has been well established repeated ploughing, grubbing and harrowing must be practised in order to reduce it. The land should be ploughed at first with a shallow furrow and as much as possible of the weed collected by grubbing and harrowing when the soil is just in the right condition to leave the roots and the creeping stems of the weeds easily. The passage of a roller over the land greatly assists the harrow to shake off the soil from the couch and allow the collection of the weeds in unbroken pieces or clumps. Hand-picking of the couch that has been brought up should be adopted and all the fragments should be collected into heaps and burned. A short rotation including extra root or hoed crops will be of great value in fighting all species of couch. Rape, vetches or other similar crops which will grow luxuriantly and smother weeds may be grown with advantage.

Dock and Sorrel. In grass land dock can be attacked by spudding or by removal by pulling or with the docking iron when the ground is soft. The operation should take place well before the flowering season and all parts of the plant should be burned. Never throw docks on land and leave them for they are very likely to live and spread. A pinch of sulphate of ammonia placed on the cut surface of the spudded docks will almost certainly destroy the roots. Where arable land is badly infested with docks the best plan is to remove them entirely during tillage operations deep ploughing being needful. Pulling up of the docks by hand should be perservered with where docks abound in growing corn. In the case of the sorrels by far the best way of dealing with these pests, which are sometimes very common in pastures, is by dressings of lime which tend to weaken the weeds and at the same time encourage the

growth of the more valuable plants. Regular cutting down of the plants and in arable land the removal of the root-stocks should be practised.

Goosefoot. Where this weed occurs among cereal crops it may be largely destroyed by surface cultivation with light harrows when the cereal is 2—3 ins. high, the latter being deep-rooted when compared with the weed which in the young seedling stage is easily loosened from the soil. Among root crops goosefoot should be attacked by vigorous and frequent hoeing when the plants are small : if the weather is hot the weeds soon wither. Large specimens can be removed by hand and, at all times, it is important to prevent seeding.

Dodder. When once established Dodder is so harmful that it is very important to prevent its access to clean farms. In the case of red clover, crimson clover, lucerne, flax seed, and linseed the purchaser would be well advised to submit samples to the Official Seed Testing Station for a report as to the presence or otherwise of Dodder and not to assume because dodder may not have been declared that it is not present in the sample. Where dodder is found growing even in small quantities, steps should be taken to destroy it. This may be best done by digging up the infected patches and destroying the whole in situ by covering the area six to nine inches deep with long chaff, sprinkling it with paraffin and then setting it on fire. It is a mistake to remove infected plants for burning as small pieces of dodder, if dropped, will soon secure a fresh attachment and the rapid spreading of the plant is likely. A field that has been infested with dodder should not be allowed to carry a clover, lucerne or other leguminous crop for a few years. In cases where the dodder has infected the larger part of a crop it is probably best to plough the whole under before the parasite has a chance to set seed. Infested clover or lucerne should not be fed to stock as the dodder seeds pass through the alimentary canal of animals unharmed.

Nettles. In the case of the common stinging Nettle, which is of course a perennial, the weed may be destroyed by regular cuttings of the shoots from the time they appear in the spring onwards whenever the stems are over six inches high. This plan, if systematically carried out, will finally exhaust the reserve of food material in the root-stock. The eradication will be very much hastened by a dressing of salt ($5\frac{1}{2}$ lbs. per rod, or on larger areas 6 or 7 cwt. per acre) when the nettles are first cut down in the spring. The small Stinging Nettle as an annual is more easy to deal with. Whenever

it occurs in arable land this weed may be successfully fought by thorough and regular hoeing to prevent seeding for a year or two.

Poppies. These are much more common in some districts than others. In a district where they are known to abound care should be taken to screen cereal seed. Seeding of the established poppies should be prevented by hoeing out or hand-pulling wherever possible. Where seeding is known to have occurred the procedure should be to encourage early germination in the spring by endeavouring to keep the seeds at the surface and procuring a fine tilth. In damp weather the seeds will commence growth and, as soon as fine dry weather comes, surface cultivation with the hoe, light harrows, etc., will tend to kill the poppy plants. A repetition of this procedure may be carried out at a somewhat later date. Where a corn crop is high, hand weeding may be the only plan which can be followed. If the poppies are very abundant it is sometimes advisable to forego a corn crop and take an extra root crop in the rotation and by this means poppies may be largely reduced. Spraying with a 4 per cent solution of copper sulphate damages the poppy plants and is likely to prevent them from coming into flower. The treatment should be applied when the poppies are not more than one half or one quarter grown at a time when the corn crop is not too tall to allow the solution thoroughly wetting the poppy plants.

Ragwort. It is not generally recognised that this weed is poisonous to cattle. In pastures the plant is rarely eaten except to a small extent and so little harm results. On the other hand ragwort may be included in hay and serious effects on the cattle follow for the poison is cumulative in action. A very usual method of dealing with ragwort is close depasturing with sheep from winter to early spring. The repeated eating back by sheep weakens the plant and prevents seeding. It is to be remarked that the rather general view that sheep can eat any amount of ragwort without harm is not quite correct. Other modes of dealing with it when established are as follows: hand-pulling by children after rain has softened the ground, if this is done when the plants are near flowering time the whole lot should be burned, as if laid in a heap seeding may take place. If pulled quite early, say in June, simple rotting in heaps will be sufficient. Mowing or cutting over the plants in June or early July and again in the latter part of August and once more late in September is an effective method of eradication. Cutting should continue for at least two years in order to account in the second year for plants which were in a young state in the

first season. In view of the long continued vitality of ragwort seeds, and also the possibility of re-seeding of the land under treatment, it will be necessary to keep a watchful eye on the land for some years. A good method to adopt when cutting off the heads is to leave a sufficient length of the lower part of the stem untouched. In the autumn when the ground has been softened by rain and the roots have shrunk and hardened they may be quite easily pulled out by hand.

Spurry. To keep down this weed on arable frequent surface cultivation in spring and summer should be carried out to encourage the germination of the seeds, the resulting seedlings being destroyed by the use of harrows. Liming or chalking of land will usually result in a great and speedy reduction in spurry which is nearly always associated with soils deficient in lime. Unless the soil is attended to it is extremely likely that the weed will come on the scene again however thoroughly other measures have been carried out. The basis of control measures will therefore usually be liming or chalking. A badly infested crop may be fed with sheep before seeding takes place for spurry is quite a good fodder plant. Now and again spraying may be employed when the land is very foul. Here a 5 per cent solution of copper sulphate is employed (16lb. in 40 gallons of water per acre) and this has been found fairly effective.

Thistles. The Spear Thistle as a biennial only grows two seasons, at the end of which time, it is exhausted and dies. In this case (and also with the Watted and Marsh Thistle which are also biennials) seeding must be prevented at all costs. This can be done by cutting with a spud below ground or with a scythe, sickle, or mowing machine above ground in late June and July when the plants have sent up their flowering stems and before the flowers have opened. If cut at this time the plants die two or three months before their natural time and before any seed has a chance to be formed. This method is only suitable with plants in their second season of growth and the new seedlings must also be destroyed. They are best spudded in meadows and pastures in the late autumn and spring. At this period the plants will be in form of rosettes which lie very close to the ground, and in cutting with a spud or similar implement make certain that the roots of the plant are cut through below the bud part from which the leaves arise. It may be pointed out that often strong plants of these thistles have more than one root, each adorned with a rosette, and unless in each case all the roots are severed the treatment is of little avail. The only way to make

a clean cut of everything is to use a wide-bladed spud and this should be driven well below the surface of the land and the grouped rosettes of leaves turned upside down to make sure that the work has been thoroughly accomplished. Cutting in the spring and autumn as described for the killing of the young plants, and in June and July for the destruction of the old ones so as to prevent seeding, is all that is required in the case of the biennial thistles mentioned.

The Creeping Thistle, which is a perennial, cannot be destroyed by the means described above. Seeding must be prevented but to wait until midsummer before cutting down the plant is to allow this plant to get an even stronger hold. In the summer the plants manufacture a large amount of food material in their foliage and this is stored below ground in the roots and the root buds. Not a great deal of seed is produced and only a slight drain is made on the stored food. Of course the removal of the stems after this storage in the roots has taken place will not weaken the plants and it has been shewn that two or three mowings late in the season have hardly any effect at all on the Creeping Thistle. The only way is to cut early in the year soon after the stems appear above the ground and this cutting should be repeated on subsequent growths during the season. If this cutting back is carried out often the root-stocks will at last become so worn out that the plants die. Systematic cutting down with the spud or scythe on meadows or pastures throughout the season, or the growth of a couple of root crops where the weed is very prevalent on arable land, is a sure method of getting rid of this pest which is one of the worst with which farmers have to deal.

The Dwarf Plume Thistle has, as already mentioned, a creeping root-stock and it is almost stemless. These conditions make it an extremely difficult plant to deal with for it is a perennial which stores food in the same way as the Creeping Thistle. The plant is not tall enough to be cut with the scythe, or similar implement, and it is sometimes so common that spudding is a tedious and a very costly business. Spudding, however, is the only practical method and this should be continued throughout the summer. Cut the root clean through below the rosette and turn it upside down. Any measure such as manuring which will improve the growth of the general herbage is worth carrying out as strong grass, etc., helps to smother the low growing thistle.

As the Sow Thistle is an annual only propagated by seed it is clear that the most important step is to prevent seeding at all costs. Plants not only on fields but on waste patches should be cut down

before the flowers have really developed. Surface cultivation in the spring with the harrow will destroy thousands of seedlings.

Yellow Rattle. This plant which is a semi-parasite on the roots of grasses, etc., is a very undesirable weed and, where it occurs extensively, much harm will be done to the meadow for the useful plants are crowded out and weakened and, as the Yellow Rattle is not liked by stock, the value of hay in which it occurs is reduced. The species is generally regarded as a weed of poor meadow land; well drained, closely grazed and rich well cared for pastures are not very often infested. When Yellow Rattle appears immediate measures should be taken to eradicate it. One of the simplest methods is to mow the weed early before the seeds are ripened and this is generally regarded as the best plan to adopt. Where the land is intended for hay mowing must take place early. It has been proved that early mowing for two years in succession, so preventing seeding, has given satisfactory results. Close grazing with sheep early in the spring will largely destroy the year's growth of the plant. On heavy land a dressing of basic slag applied before the end of November will encourage a luxuriant growth of clover and, if such pasture is closely grazed by stock, the Yellow Rattle as well as other weeds will be prevented attaining normal growth and will soon disappear. Such an application of basic slag is only calculated to have the best effect if the field is grazed, not mown for hay, and the manuring and grazing must be combined. Top dressings of salt at the rate of 5 to 7 cwt. per acre have on occasion proved effective, but there is a risk of such treatment damaging the grass and clover. When as often happens the Yellow Rattle is growing in damp and low-lying meadows and pastures, draining will be found to be a useful measure.

SEED TESTING.

The sale of agricultural seeds, of the most important garden seeds, and of seed potatoes in Great Britain, is now regulated by the Seeds Act 1920 and by the Seeds Regulations 1922 made under the Act, copies of which may be obtained from any bookseller or directly from H. M. Stationery Office, Adastral House, Kingsway, W.C.2., price 3d. each net. A summary of these Regulations may be obtained free of charge on application to the Ministry. Under the Act and Regulations it is required that a seedsman, when selling or offering for sale for sowing, any of the kinds of seeds scheduled in the Regulations must declare in writing to the pur-

chaser at, or before the time of sale or delivery, certain essential particulars as to the quality of the seed in question such as the percentage of purity, percentage of germination, presence of injurious weeds, etc. In the case of a sale of seed corn made on or before the 30th April, of the year following that in which the seed is harvested the particulars, which are limited to a statement as to the distinctive name of the variety, the percentage of germination, and that the seeds have been tested in accordance with the requirements of the Seeds Act, may be delivered at any time within a month of the sale, and not, as in the case of other seeds, at or before the time of sale or delivery. This concession is allowed in order to avoid delay in the delivery of new seeds urgently required for sowing. The particulars required to be declared in the case of seed, other than garden seeds, must be ascertained by a test carried out either at an official seed testing station or a private testing station specially licensed by the Ministry.

One extremely important point sometimes overlooked by farmers is that, in selling seed corn or any of the scheduled kinds of seeds intended for sowing such as red clover seed, tares, etc., is that they are in precisely the same position as the seedsman and they are bound to give the same guarantee. Thus a farmer selling a sack of home-grown clover to another farmer must, in the first place, have a sample tested at an Official Seed Testing Station and supply the buyer with a copy of the record not later than the date at which the seed is delivered.

HOW TO GET SEED TESTED.

The Official Seed Testing Station for England and Wales is at Huntingdon Road, Cambridge. The charge to a farmer who wishes to have a sample of seed tested for his own information is only sixpence, and there is every reason for making use of the facilities offered. Where it is desired to have a testing the result of which will form part of a declaration for sale, the charge is on the same scale as that made to seedsman. Five shillings is charged for a sample of grasses or clovers; four shillings for mangolds or beet; three shillings for all kinds of field and garden seeds and two shillings for seed corn. Mixtures are charged at double the rate for grasses and clovers, except that perennial and Italian rye grass mixtures, and mixtures described as "Alsike and white clover, grown together," will be tested as one kind of seed at the five

shilling rate. The report on a test includes a detailed statement as to the purity of the seed and its germinating capacity. A study of the report will enable the farmer to decide whether the seed is fit for sowing. The weight of samples sent to the Station should not be less than those specified in Regulation 5 of the Seeds Regulation 1922.

WHEN SENDING SEED FOR TESTING.

Farmers who intend sending their seed to the Official Seed Testing Station are asked to comply with the following regulations.

Size of Sample to be sent : -

Broad Beans and Runner Beans	8 oz.
Peas, Tick and Winter Beans and Dwarf Beans ..	4 oz.
Wheat, Oats, Barley, Rye, Vetches, Red Clover, Crimson Clover, Trefoil, Lucerne. Sainfoin,	
Flax, Linseed	4 oz.
Grasses, Alsike, White Clover, Mangolds, Beet, Field Turnip, Field Swede. Rape, etc. ..	2 oz.
Wild White Clover	1 oz.
All Vegetables except Beet	$\frac{1}{4}$ oz.

Special envelopes may be obtained free of charge on application to the Chief Officer of the Official Seed Testing Station at the address given above.

It will be observed from the report that the purity percentage is estimated by weight and the germination percentage by number. In practice it is of course impossible to estimate purity by number or germination by weight. Usually seed is purchased by weight, but it is really important that the farmer should know the number of germinable seeds per acre represented by the weight it is proposed to sow. The value of a sample of seed will depend to a large extent upon the percentage of purity and germination, but a statement regarding purity alone, or germination alone, is of little use. Thus it is most desirable that the farmer should consider what may be the percentage of pure and germinating seed that he is buying. This percentage figure is sometimes called the "real value" of the sample, and is obtained by multiplying the percentage of purity and the percentage of germination and dividing the product by 100. Thus if the purity is 95 per cent and the germination capacity is 90 per cent the "real value" is $(95 \text{ by } 90) \div 100 \text{ per cent} = 85.5$

per cent. It is of course not only important to get an idea of the actual percentage of pure seed but also to know what is the nature of the impurity. Where the impurity consists largely of inert matter such as broken seeds, seeds which contain no kernel (in the case of grasses), chaffy matter and particles of soil it is not likely that harmful results would arise. Now and again a proportion of the impurity may consist of other useful seeds and again this is not very serious. When the impurity consists largely of weed seeds there is of course good reason for the farmer to be on his guard. As has already been indicated seeds of certain plants are scheduled by the Seeds Act as injurious and where more than 1 per cent occurs in a sample of clover or more than 2 per cent in a sample of grass this fact has to be declared by the seller. The scheduled injurious weed seeds are those of Docks, Sorrels, Cranesbills, Wild Carrot, Yorkshire Fog and Soft Broom Grass. There are many other weeds the presence of which is almost equally undesirable. It may be pointed out that the seeds of common weeds vary a good deal in size and to declare the percentage by weight does not give much idea of the harm that can be done. Thus, if a red clover sample contains 1 per cent by weight of European clover dodder, each pound of the "red clover" seed would contain 18,000 seeds of dodder. If 16 lb. of red clover were sown per acre this would mean no less than 60 dodder seeds per square yard over the whole area sown. It must also be borne in mind, that when purchasing grass or clover seeds which vary very much in size, that 1 per cent of a certain weed may mean a much greater number of weed seeds as compared with good seed in some cases than in others. As an illustration supposing one-hundredth part of the weight of a quantity of alsike seed is really poppy seed, over 5 per cent or 1 in 20 of the seed will be poppy. With a larger seed, such as red clover, if one-hundredth part of the weight is poppy 17 per cent or 1 in 6 of the seeds sown will be poppy. In this instance if the red clover seeds cost 2/- per lb. about 4d. goes in buying the undesirable red poppy seeds. Generally speaking impure seed is most harmful when it is present in the mixtures of grasses and clovers. These crops which may occupy ground for from 18 months to a number of years usually contain the greatest proportion of weed seeds. Crops like cereals and vetches, which although not occupying the ground for long, are difficult to weed, are also greatly harmed by the presence of weeds. It is even more important to sow pure seed on poor land than on good land, for on poor soil seeds do not secure a hold so quickly and so the weeds have every chance of establishing themselves.

COMPULSORY DESTRUCTION OF WEEDS.

All occupiers of land should cut down and destroy injurious weeds growing on their land, more particularly those weeds which may spread to other fields. The corners of fields, the hedgerows, and waste patches generally should not be allowed to harbour weeds and not half enough care is taken to attack the pests in such situations. Under the Corn Production Acts (Repeal) Acts 1921 the Ministry of Agriculture and Fisheries may serve on the occupier of any land infested with certain injurious weeds a notice in writing requiring him to cut down or destroy the weeds in the manner and within the time specified in the notice. Where the occupier unreasonably fails to do so he is liable, on summary conviction in respect of each offence, to a fine not exceeding £20 and a further fine not exceeding £1 per day while default continues after conviction. The Minister has delegated his powers to the various County Agricultural Committees and any communication on the subject of putting the Act into operation as regards particular land should be addressed to the Clerk of the County Agricultural Committee, at the offices of the County Council for the Administrative County in which the land is occupied. If the land is situated within the boundaries of a County Borough for which there is no Agricultural Committee, communications should be addressed to the Ministry in London. The injurious weeds to which this provision applies are Ragwort, Spear Thistle, Creeping or Field Thistle, Curled Dock and Broad-leaved Dock. The expression occupier means in the case of any public road the authority by whom the road is being maintained and in the case of unoccupied land the person entitled to occupy it. Quite apart from the weeds specially scheduled as injurious there are many others which should be suppressed on every possible occasion.

IV.—LIABILITY OF OCCUPIERS.

By D. Meston.

The occupier of premises is under a duty to those persons who come upon his property. This duty may be a matter of expressed or implied contract between the occupier and the person who comes upon the occupier's premises, or it may be an obligation

which is created by the law itself. The duty imposed by contract depends upon the nature of the contract and calls for no special comment, but the obligation which the law imposes upon an occupier in this respect is one of the most interesting branches of the law of torts. In the following pages we will deal, therefore, with the liability which the law imposes upon an occupier of premises towards those persons coming thereon, remembering always that we are not concerned with any question of contractual relationship between the parties.

The liability of an occupier towards a person coming upon his property depends upon whether that person is (1) a trespasser, or (2) a licensee, or (3) an invitee. We will deal with each of these classes of persons in turn.

(1) **TRESPASSERS.** A trespasser is a person who has no colour of right to go upon the property of another; he receives no invitation from the occupier to go upon his land, nor does the occupier give him a licence to come upon his property, nor does he go upon the land of another as a matter of right, *i.e.*, in the execution of some process of law. A trespasser is a person, therefore, who enters upon the land of another wrongfully, and the general principle of law is that he who enters wrongfully enters at his own risk in all respects. A burglar who breaks his leg by falling down the stairs cannot complain that they were insecure, nor can a beggar recover damages because he is bitten by a dog. To a trespasser the occupier owes no duty either to see that his premises are safe, or to give warning of their danger. Thus, in *Ponting-v-Oakes* (1894) 2 Q.B. 281, the plaintiff and defendant were adjoining occupiers of land, and on the defendant's land there was a yew tree, the branches of which extended close up to the boundary line between the two properties but did not actually cross the boundary. The plaintiff's horse reached across the boundary, ate the leaves of the yew tree, and died in consequence. It was held that the plaintiff could not recover for the death of his horse, for the defendant owed no duty of care in respect of trespassing animals. Nevertheless, it is an actionable wrong to place anything on one's land *for the purpose* of attracting and injuring the animals of the adjoining occupier. Thus, in *Townsend-v-Wathen* (1808) 9 East, 277, it was held that if an occupier places dangerous traps, baited with flesh, in his own ground, so near to the highway or to the premises of another, that dogs passing along the highway, or kept in his neighbour's premises, must probably be attracted by their instincts into the traps, the person placing such traps is responsible for any injury done thereby.

The general principle of law above stated, namely that an occupier is under no liability to a trespasser who is injured upon his property, is subject to an important qualification. For an occupier must *not intentionally create* a source of danger in order to harm anyone coming upon his premises. It must not be thought that a man forfeits his legal rights by becoming a trespasser. I must not throw stones at a man because he crosses my land without permission, and for the same reason I must not lay a trap for him whereby he may, when trespassing, bring mischief upon himself. Thus, in *Bird-v-Holbrook* (1828) 4 Bing. 628, the defendant placed a spring gun in his garden to protect it from the depredations of thieves and trespassers. The plaintiff was a boy who was ignorant of the existence of any such danger, and he trespassed in the plaintiff's garden in order to recapture a fowl which had strayed there. While so trespassing he was injured by the discharge of the gun, and it was held that he had a good cause of action against the plaintiff for the injuries so sustained. That case was decided at Common Law, but it was subsequently enacted by statute (The Offences Against the Person Act, 1861, Section 31) that the setting of spring guns is a criminal offence. It must be remembered, however, that an occupier may intentionally create a source of danger which is *reasonably necessary* for the protection of his property. It is not lawful to protect one's property by means of a spring gun or a mine of dynamite, but it is perfectly lawful to protect it by means of spikes or broken glass upon the top of a wall, or by a barbed wire fence, or by a dog accustomed to bite mankind so long as the dog is not savage and therefore likely to cause serious bodily harm. In *Jordin-v-Crump* (1841) 8 M. & W. 782, an occupier who sets dog-spears in a wood for the purpose of killing dogs who there hunted hares was held not liable to the owner of a dog which was fatally injured on one of the spears.

(2) LICENCEES. A licensee is a person who enters on the premises by the permission of the occupier, granted gratuitously in a matter in which the occupier himself has no interest. The typical example is a gratuitous licence to use a way across the occupier's land for purposes which exclusively concern the licensee himself. Another example is the case of a guest receiving hospitality in a private house.

The leading authority on the position of licensees is the decision of the House of Lords in *Fairman-v-Perpetual Investment Building Society* (1923) A.C. 74. The facts in that case were as follows:—The defendants were the owners of a block of flats which they let

to various tenants, while they themselves retained possession of the common staircase giving access to these flats. The plaintiff had been residing for several months with her brother-in-law who was a tenant of one of the flats. The cement steps of the stairway were in a worn and dangerous condition, and the plaintiff in descending caught her heel in a depression and was seriously injured. It was held by the House of Lords that (1) the defect in the stairway which caused the accident was not in the nature of a concealed danger or trap, and (2) that the plaintiff was only a licensee of the defendants and that, therefore, the defendants were not liable for the injuries so sustained by the plaintiff.

The above case, to which we will advert constantly throughout this discussion, set at rest any doubts there may have been in the past in regard to the duty owed by an occupier towards a licensee. It is now established beyond all controversy that the occupier of premises is under no obligation to a licensee to make them safe for use by him. In the words of Lord Wrenbury in *Fairman-v-Perpetual Investment Building Society* (ante): "The position as between the owner of premises and a licensee is that permission is given to come upon the premises such as they are, and the licensee must take them as they are." But the rule thus stated by Lord Wrenbury is subject to an important qualification. Although the occupier is not bound to use any care to make the premises safe for the use of a licensee, he is under an obligation to give warning to a licensee of the existence of any *concealed danger or trap* which exists on the premises and is known to the occupier. By the term "concealed danger" is meant a danger of which the licensee is ignorant, and which is not of such a nature that the licensee, using due care for his own safety, would discover for himself and so avoid harm. In an action, therefore, brought by a licensee against an occupier for injury suffered through the dangerous state of the premises, it is an absolute defence that the danger was actually known to the plaintiff and voluntarily encountered by him. Even if the licensee does not actually know of the danger, he has no cause of action if the danger was so visible, obvious, or usual on that class of premises that a licensee using due care for his own safety would have discovered it for himself before coming to any harm. In *Fairman-v-Perpetual Investment Building Society* (ante) although the steps were out of repair and therefore dangerous by reason of the wearing away of the cement of which they were constructed, the danger was open and visible, so that the plaintiff either knew it or ought to have known of it, for she had used the stairway for some months. If, however, in that case, the stairs had been of woodwork which,

though apparently sound, was in reality decayed and unsafe to the knowledge of the landlord, he would have been liable even to a licensee, for this would have constituted a concealed danger neither known nor obvious to the plaintiff. On this point reference may be made again to the judgment of Lord Wrenbury in *Fairman-v-Perpetual Investment Building Society* (ante): "If the danger is not obvious, if it is a concealed danger, and the licensee is injured, the owner is liable. But something must be said as to the meaning of 'obvious.' Primarily a thing is for this purpose obvious if a reasonable person, using reasonable care, would have seen it. But this is not exhaustive unless the words 'reasonable care' are properly controlled. There are some things which a reasonable person is entitled to assume, and as to which he is not blameworthy if he does not see them when, if he had been on the alert and had looked, he could have seen them. For instance, if one step in a staircase or one rung in a ladder has been removed in the course of the day, and a man who had used the staircase or the ladder in the morning comes home in the evening, finding the staircase or ladder still ostensibly offered for use, and goes up or down it without looking for that which no one would reasonably expect, viz., that a step or rung has been removed—he has nevertheless suffered from what has generally been called 'a trap,' although if he had stopped and looked he would have seen that the step or rung had been removed. He was entitled to assume that there was no such danger."

Does the duty of an occupier to warn a licensee of concealed dangers extend to those which are not actually known to the occupier? In the authorities before the case of *Fairman-v-Perpetual Investment Building Society* (ante) the duty of an occupier to warn a licensee of a concealed danger has been referred to as if it was limited to a concealed danger actually known to the occupier. Thus, in the comparatively recent case of *Cooke-v-Midland Great Western Railway of Ireland* (1909) A.C. 229, Lord Atkinson said (at page 238): "The owner of land upon which a licensee enters on his own business, or for his own amusement, is only responsible for injuries caused to the latter by hidden dangers of which the former (i.e. the owner or occupier) knew, but of which the licensee was ignorant and could not by reasonable care and observation have detected." But in *Fairman-v-Perpetual Investment Building Society* (ante) the House of Lords took the view—although it was not necessary for them to decide the point and no binding decision was actually given by the House upon it—that the duty of warning extends not only to concealed dangers actually known to the occupier

but also to concealed dangers which he ought to have known. In the course of his very illuminating judgment in that case, Lord Wrenbury defines a concealed danger as "a danger that was or ought to have been known to the lessor (*i.e.* the owner or occupier), and which the licensee using reasonable care, would not have discovered." If the view thus expressed by Lord Wrenbury is the correct one—and it is respectfully submitted that it is so—it would appear that an occupier, though under no obligation to a licensee to take care to make the premises safe, is bound to take care to ascertain whether any concealed dangers exist and to give him warning of them; the liability of an occupier is not, therefore, limited to cases in which he knowingly leads the licensee into a trap by exposing him to dangers unknown to the licensee but known to himself.

Before leaving the subject of licensees it is well to say something upon the question of liability in regard to children. In modern times the Courts have taken the view that children—especially those of tender years—cannot be regarded in quite the same light as adults. For a concealed danger or trap which is obvious to an adult will not always be so manifest to a child. The occupier of premises may be liable for his own negligence in exposing a child to the temptation of interfering with dangerous and attractive things which he discovers. Thus, in *Corporation of Glasgow-v-Taylor* (1922) 1 A. C. 44, a child of seven years of age lawfully entered a botanic garden maintained by the municipality, and was there poisoned by eating the berries of a poisonous shrub of tempting and innocent appearance. Although the child had no right thus to interfere with the plants of the botanic garden, the Corporation was held liable for knowingly exposing young children to such temptations and dangers without warning or other protection. Moreover, children who are really trespassers may become to be regarded as licensees. For where an occupier habitually and knowingly acquiesces in the trespasses of children, these children cease to be trespassers and become licensees, and the occupier owes to them a certain duty of care and protection accordingly. In *Cooke-v-Midland Great Western Railway of Ireland* (1909) A.C. 229, the plaintiff, who was a child between four and five years of age, was injured while playing with his companions on a turn-table on the defendant company's railway premises. The turn-table was kept unlocked and was close to a public road. The company's servants knew that children were in the habit of entering on the premises from the road for the purpose of playing with the turn-table, and no precautions were taken by the company, either to exclude the children or to lock the turn-table,

so as to prevent it from being an instrument of mischief. It was held by the House of Lords that there was evidence of actionable negligence on the part of the railway company on the ground that the habitual acquiescence of the company was sufficient evidence that the plaintiff was not a trespasser, but was on the railway premises with the leave and licence of the company. It also appears from the judgments of the learned Law Lords in that case that the turn-table was to be regarded as a "concealed danger or trap" in so far as the children were concerned, though, of course, adults would have discerned in the turn-table an obvious source of danger which could easily be avoided by the exercise of reasonable care on their part.

(3) INVITEES. An invitee is a person who enters on the premises by the permission of the occupier granted in a matter in which the occupier has himself some pecuniary or material interest. The typical example is the implied permission by which intending customers enter a shop.

The leading case on the subject of invitees is that of *Indermaur-v-Dames* (1866) L.R. 1 C.P. 274, in which the occupier of a factory was held liable to the plaintiff who was a gas-fitter employed by the defendant, and who, while testing certain gas-fittings on the defendant's premises, fell through an unfenced opening in one of his upper floors and was injured. It was contended that a person in the position of the plaintiff enters at his own risk and must take the premises as he finds them; but this contention was rejected and it was held that the defendant was under a duty to make his premises *reasonably safe* for an invitee, and that the plaintiff was such an invitee.

Is the duty of an occupier towards an invitee to make the premises reasonably safe for use by him or merely to give him warning of any danger on the premises? This question has frequently been the subject of consideration in the past and the answers thereto have not been uniformly similar. In *Cavalier-v-Pope* (1906) A.C. 428, Lord Atkinson said "The case does not come within the principle of *Indermaur-v-Dames*, because one of the essential facts necessary to bring a case within that principle is that the injured person must not have had knowledge or notice of the existence of the danger through which he has suffered. If he knows of the danger and runs the risk he has no cause of action." On the other hand in *Norman-v-Great Western Railway* (1915) 1 K.B. 584, the Court of Appeal (*Buckley, Phillimore and Pickford L. J. J.*) took the opposite view and held that the rule in *Indermaur-v-Dames* (*ante*) imposed upon

the occupier towards an invitee the duty of taking care to make the premises reasonably safe, and not merely a duty to warn the invitee that they were dangerous. The position was stated by *Buckley L. J.* (now Lord Wrenbury) in these words: "The duty of the invitor towards the invitee is to use reasonable care to prevent damage from unusual danger which he knows or ought to know. If the danger is not such that he ought to know of it, his liability does not extend to it." In this connection it is well again to refer to the case of *Fairman-v-Perpetual Investment Building Society*, where the view was expressed that an occupier is under an obligation to warn a licensee against concealed dangers which are known, or ought to have been known, to the occupier. If that is the correct view—and we have said that in our opinion it is so—then it is submitted on principle that the duty of an occupier in regard to warning an invitee is the same as that which rests upon an occupier in warning a licensee. That is to say, it is the duty of an occupier to warn an invitee of dangers which are known, or ought to be known, to the occupier.

V.—LIVER ROT AND ITS CONTROL.

By C. L. Walton, M.Sc., Ph.D.

Adviser in Agricultural Zoology for North Wales, Department of Agriculture, University College, Bangor.

and W. Rees Wright, M.Sc.,

Department of Agriculture, University College of North Wales, Bangor.

INTRODUCTION.

The disease of sheep and cattle (and occasionally of other animals and even man) generally known as Liver Rot, is caused by the presence, in the bile-ducts of the liver, of the parasitic flatworm *Fasciola hepatica* Linn., (often but incorrectly called *Distomum hepaticum*) commonly known as the Liver Fluke. The object of this present article is to summarise our knowledge of the Fluke and its life-history, of the disease, and of its prevention and treatment.

The disease is world-wide in its distribution, being present to a greater or less degree in all countries where sheep are found. It

is typically associated with damp soils ; this association is due to the fact that a portion of the life-cycle of the parasite is spent in the body of a freshwater snail—(in this country *Limnaea truncatula*), as was demonstrated by Thomas (18-21) who first elucidated the whole life-history. While this paper is concerned chiefly with the disease as it presents itself in Great Britain, the measures advocated for its control, both by prevention of infection through the destruction of the host snail, and by the treatment of infected animals, are of universal application.

HISTORICAL.

It would appear that the disease was well known to the ancients, reference being made to it by the Roman poet Virgil, and also by some of the writers on agriculture. Confining our attention to Britain, and to more recent times, it is of interest to note that the disease is referred to by Shakespeare ; since that period it is mentioned by most writers on agricultural subjects.

While the disease is normally present on damp or undrained land, from time to time it attains very serious proportions, appearing on land previously free from it. These epizootics occur after, and as a result of, periods when the climatic conditions have been especially favourable for the multiplication of the host snail, while on the other hand, after prolonged unfavourable periods the disease may almost disappear from regions where it is normally present. It is interesting to note that some of the earlier workers had remarked this dependence of the disease upon weather.

Simonds (17) has given a history of the disease up to 1860. While the views of the earlier writers as to the causation of the disease were erroneous, they coincided in attributing it to wet land, and as we now know, this is, indeed, indirectly responsible. The relation of the parasites to the disease was not clearly understood ; it must be borne in mind that in the then state of natural science, it was as likely that the flukes would be regarded as the *product* of the diseased condition of the liver, as that they would be held to be the *cause* of it. In the paper referred to, Simonds has given a list of such of the more serious outbreaks as he was able to trace. Thus there were grave outbreaks in 1735, 1747 ("after a wet spring which succeeded a mild winter"), 1766, 1792, while there were other serious outbreaks between 1809 and 1824. In 1830-31, again, there was a most grave outbreak, the number of sheep succumbing being estimated at over two million. While there were periods of increase of the disease in the intervening years, the

next epizootic worthy of notice is that of 1860-61. To quote from Simonds "it may be affirmed that all the western and southern counties of England, together with several of the eastern and midland, suffered to a ruinous extent. As in former years, so in this, the attacks of the disease were due to an excess and long continuance of wet weather . . . , losses of sheep amounted from 600 to 700 in a flock . . . , one in particular, who buys about 800 . . . ewes annually, had not more than 40 or 50 which escaped In many parishes of Devonshire . . . , five-sixths of the sheep perished . . . , young cattle being found to be affected with flukes." In 1879-1881 a still more serious epizootic was experienced; it has been estimated that over three and a half million sheep died from rot during these years (5). Finally may be mentioned a grave outbreak in the western counties and in North Wales in 1920-21 (23).

While the disease is by no means rare in cattle, in various parts of this country—though heavy infestations are not usual save during epizootics—it would appear that these animals are more often infested in other countries; thus, according to Hutyra and Marek (2) 4.9 per cent of the cattle slaughtered at Budapest during the years 1889-1903 were infested, while at Okayama (Japan) as much as 16 per cent contained flukes.

THE LIVER-FLUKE; SYSTEMATIC POSITION.

Fasciola hepatica Linn., belongs to the division or phylum of the animal kingdom known as the PLATYHELMINTHES, or Flatworms. This division contains both free-living and parasitic forms. In general, the body is flattened, and either leaf-like or tape-like in form. There are three classes. In the first, the TURBELLARIA, are included various worms which are for the most part free-living, only a few being parasitic; some small species are quite abundant in ponds and ditches in this country. In the second class, the TREMATODA, are included the Liver-Fluke and similar forms, while the third class, the CESTODA, contains the tape-worms; all the members of these two classes are parasites.

The Trematodes are either internal or external parasites. For the most part they are flat and leaf-like, a few being cylindrical. The body is not divided into segments. One or more suckers are present for purpose of attachment. The gut is forked, the branches being blind at their posterior ends. The excretory system is somewhat complex. Most are hermaphrodite, with elaborate

sexual organs, and many are self-fertile. The life-history is often exceedingly complex.

Fasciola hepatica is included in the family DISTOMIDAE, which are characterised by the presence of two suckers, one of which surrounds the mouth opening, while the other is on the ventral surface of the body in the anterior half. The life-history, where known, is complex, involving one or more intermediate hosts, which are molluscs. Except in the case of one genus (*Schistosoma* or *Bilharzia* which causes a grave disease of man in various tropical and subtropical countries) the worms are hermaphrodite. The sub-family FASCIOLINAE is further characterised by the fact that all its members are broad and leaf-like, with a spiny or scaly integument. The genital aperture is in the midline, in front of the ventral sucker. The testes are situated in front of one another, either directly or obliquely, and the ovary is immediately in front of them. Finally, the genus *Fasciola* presents the following special characters: the anterior end is distinctly differentiated into a head-lobe; the intestinal limbs have branched outgrowths (diverticula) which are long on the outer side and short on the inner; the reproductive glands (ovary and testes) are much branched; and the ventral sucker is close to the oral.

THE LIVER-FLUKE; GENERAL ANATOMY.

Fasciola hepatica Linnaeus (1758) is about 2·3 cm. (about 1 inch) in length; it is flattened and leaf-like, broadest near its anterior end, which projects as a triangular area at the apex of which, and opening ventrally, is the oral sucker. The ventral sucker is situated in the mid-line slightly posterior to the base of the anterior process, and the genital opening is somewhat anterior to the sucker, and usually slightly to the right-hand side of the mid-line. The general colour is whitish, but along the margin a variable shade of brown due to the presence of more or less food within the branches of the gut which lie beneath.

The mouth opening is situated at the base of the oral sucker. Immediately behind the opening is a muscular pharynx, succeeded by a short oesophagus. At the termination of this the gut forks, each branch running almost to the posterior end of the body. As has been mentioned already, these branches are themselves divided to form blind outgrowths.

The sexual organs are complex. The two testes (male reproductive glands) are very diffuse, extending almost throughout the

body. The ducts from the various lobes of each testis unite to form a vas deferens opening, together with its fellow of the other testis, into a seminal vesicle. There is a male intromittent organ, or penis, which is protrusible. The ovary is somewhat branched. The ova pass from it into an ovarian duct; into this opens a duct communicating with the yolk glands. These last are diffused throughout the body, and elaborate nutritive cells which will, within the egg, provide food for the developing embryo. At the junction of the ovarian and yolk ducts there is a gland ("shell gland") which secretes the material forming the shell of the egg; from near this point a fine canal (the "Laurer-Steida canal") of unknown function passes to the exterior, opening on the dorsal surface of the body. The female duct from the shell-gland to the exterior is wide and convoluted, and is often termed the uterus; it opens at the base of the penis.

THE LIVER-FLUKE; LIFE-HISTORY.

The life-history of the fluke is complex, involving four distinct larval forms.

The adult fluke liberates a very large number of *eggs*, which pass with the bile into the intestine of the host, attaining the external world in the fæces. These eggs are ovoid (or more accurately ellipsoid) in shape, and are on the average 140μ long by 80μ broad (approximately $1/180$ th inch by $1/310$ th inch). At one extremity there is a lid or flap (the operculum) which opens to allow of the escape of the mature embryo. The wall or shell is horny in texture, and of a light to dark brown colour when the egg is passed out with the fæces, this coloration being due to the staining action of the bile. When passed, the egg contains a single germ cell and a large number of nutritive or 'yolk' cells. As the embryo develops these last diminish, and when the egg is ready to hatch are reduced to a mere trace. Under the most favourable conditions—abundance of moisture and a temperature of 23° c.—hatching takes somewhat over three weeks; at temperatures above or below this, hatching is delayed to a greater or less extent, while the eggs will not develop in the absence of a considerable amount of moisture. The eggs remain viable for very considerable periods, but will not withstand complete dessiccation, or putrefaction of the medium they are contained in.

The first larval stage, which emerges from the egg, is known as the *miracidium*. In shape it is somewhat conical, the broad anterior end (the base of the cone) gently rounded, as is also the

truncated (posterior) end. From the surface project a great number of microscopic hair-like processes or cilia, which vibrate rapidly, and so move the larvæ through the water; the mean length of the miracidium is about 125μ and the greatest breadth 27μ . In the centre of the anterior end is a retractile papilla, which functions as a boring organ. Near to the anterior end of the body are two crescent-shaped masses of pigment, usually termed the eye-spots; at about the midlength, and close to the axis of the cone, are two excretory cells or "flame-cells."

The miracidium is capable of existing in the free state for a limited period only; if it is to undergo further development, it is essential that it should penetrate into the tissues of a fresh-water snail of the genus *Limnaea*. This penetration is brought about with the aid of the papilla already mentioned. If the miracidium reaches the tissues of the 'mantle' of the snail, it loses its cilia, eyespots, and papilla, and develops into a thin-walled hollow sac—the *sporocyst*. This may produce further sporocysts by direct division. There is no gut, but the excretory system is more elaborate than that of the miracidium. In summer, this stage attains its maximum size of about 600μ in a fortnight, but this period is lengthened by lowered temperature (21).

Within the sporocyst a further stage is developed, known as the *redia*. These first appear as thickenings of the wall of the sporocyst; these thickened portions become free, as germ-balls, within the cavity where they undergo further development. They escape from the sporocyst through its rupture, and migrate to the 'liver' of the snail.

The redia is, like the sporocyst, a cylindrical sac with an exceedingly tenuous wall. The average length is about 2 mm., and the breadth about 4mm.; the length is, however, very variable. There are numerous very delicate muscle-fibres in the wall, which run both longitudinally and transversely. Near the anterior end the transverse fibres, and to a lesser degree the longitudinal fibres also, are massed together to form a muscular ring, the collar; this is often difficult to detect, and rarely is as prominent as the majority of published figures of the redia indicate it to be. In the posterior half of the body are two outgrowths—the procruscula.

There is a simple digestive system, consisting of a mouth situated at the anterior extremity, a pharynx, and a thin-walled digestive sac. The excretory system consists of numerous flame-cells, which are massed together near the oral extremity and again near



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.



FIG. 6.



FIG. 7.



FIG. 8.



FIG. 9.



FIG. 10.



FIG. 11.



FIG. 12.

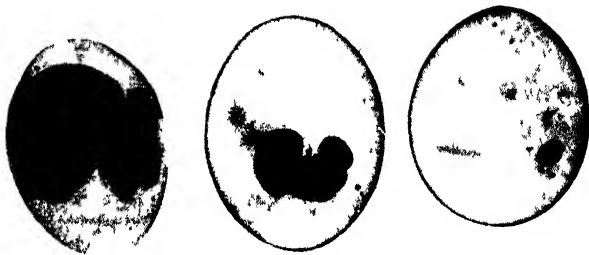


FIG. 13



FIG. 14



FIG. 16

FIG. 15

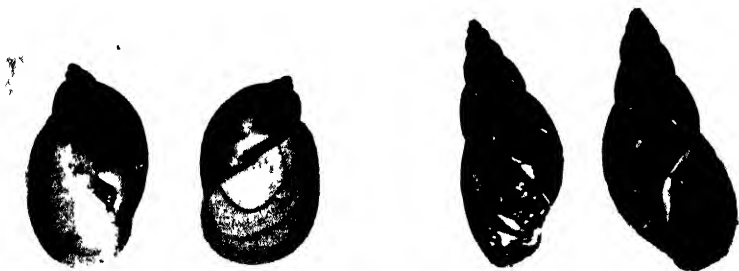


FIG. 17

FIG. 18

the procruscula, isolated cells, however, being found anywhere in the body-wall.

The redia is fairly active, as Thomas (21) pointed out, and can be seen (in the case of very thin-shelled snails) devouring the tissues of the liver and also moving about through it. Recent observations by one of us have indicated the nature of the movement. A contraction of the anterior end causes the posterior, and especially the procruscula, to expand, and as it were wedge the redia in the burrow it makes through the liver tissue. The anterior portion then elongates considerably, and forces its way through the tissues before it, a portion being eaten during the process. The collar expands, and anchors the anterior end, while the posterior contracts and is drawn forward.

Within the redia, certain cells of the wall develop into germ-balls, which become detached. In the lumen of the sac these give rise either to daughter-rediae or into the next larval stage, the *cercaria*. The mature daughter rediae and cercariae escape from the parent redia through an aperture ('the birth-pore') situated a little distance behind the collar.

The cercaria is free-living for the first part of its existence. It has a flattened circular body about .3mm. in length, with a tail about .7mm. long. There are two suckers—the oral, at the anterior end, and the ventral, in the centre of the under surface. There is a simple digestive system, containing the rudiments of the alimentary canal of the adult fluke; it consists of a pharynx and somewhat tenuous oesophagus, and two branches which run almost to the posterior end of the body. There is a well-marked excretory system, consisting of seven pairs of flame-cells, a pair of lateral ducts, and an excretory vesicle. A large number of the outer cells (the cystogenous cells) of the body contain white granules, which are excreted to form a cyst at the end of the free-living stage. The cercaria was first described by Thomas (18-21), who elucidated the complete life-history; the redia, cercaria, and cyst have recently been more fully studied by the junior author (15) of this paper.

Liberated from the redia, the cercariae attain the branchial cavity of the snail, and emerge into the surrounding water through the branchial opening. They swim about actively by means of their long tails, and though not more than 1mm. in total length are easily visible to the naked eye as milky-white specks, this visibility being due to the granules within the cystogenous cells. The free-swimming period does not last long, as a rule, for the cercariae settle down on the leaves of water-plants (or in the laboratory, on the

glass of the aquarium) cast off their tails, and, discharging the contents of the cystogenous cells, form round themselves cysts, which are at first white but later become a pale yellow.

The period over which these cysts remain viable is unknown, but some recent experiments by the junior writer would appear to indicate that they cannot withstand dessiccation for a period of fourteen days.

Infestation of the mammalian host occurs through the ingestion of grass or other plants contaminated with cysts. Some experiments recently conducted with artificial stomach and duodenal juices indicate that the cyst wall is digested in the small intestine. The exact route by which the liver is attained has not as yet been demonstrated, but there is much evidence in support of the view that the cercariae enter the body-cavity, after penetration through the wall of the intestine, and penetrate into the liver through its capsule. There is little or no valid evidence in support of the older view that they enter the liver by passage up the common bile-duct from the intestine.

The period elapsing between infestation of the liver and the maturity of the flukes has not yet been established, but recent observations by Montgomerie (12) suggest "that this phase of the development occupies a period of about ten weeks." The total length of the life cycle from egg to egg varies greatly, since the rate of development of the various larval stages depends on temperature ; in a recent series of experiments by one of us (conducted at a mean temperature of 20°C.) eighty-two days elapsed between the removal of eggs from the gall bladder of an infested sheep to the first appearance of free cercariae. Allowing for the development within the mammalian host, this gives a period of about twenty-two weeks for the whole life-cycle ; assuming that the development is more rapid in all stages of the larval period at 23°, the period cannot even then be less than about eighteen weeks.

THE HOST SNAIL AND ITS LIFE-HISTORY.

The small mollusc already mentioned belongs to the family LIMNAEIDAE, commonly called Pond-snails. The genus *Limnaea* contains ten British species, now frequently assigned to five subgenera (3). These snails may be described as of small to medium size, having a thin horny shell with a pointed spire and oval aperture. In the snail itself the tentacles are flattened, and the eyes are placed near their bases. Although found for the most part crawling and feeding upon either water plants, or the mud or stones in shallow

freshwater ditches, streams, canals, ponds, lakes, etc., they can inhale air if necessary, and hence some of them are fairly adaptable to certain adverse conditions. These snails frequently crawl along the surface film of the water by means of the broad foot, suspended from the film. The larger species inhabit stagnant or slowly flowing water, whilst the smaller may be found in swifter streams.

The recognised intermediate host of the Liver Fluke in Britain is a small species. *Limnaea* (*Galba*) *truncatula* (Müller). This species is extremely abundant, and has a wide range. The shell is conical, elongate, and of a dark-brown colour when living. The empty shell is light horn colour, rather thin, with five or six convex whorls, the spire being produced and pointed. The height (altitude) attained under favourable circumstances is twelve mm., with a breadth of five to six mm. (1). Usually, however, the size is much less. This snail is found in "ponds, ditches, and wet places generally." (16).

The senior writer and co-workers have studied numerous aspects of the life-history of this species, more especially in North Wales. *L. truncatula* favours shallow well-aerated waters, particularly those with a firm clayey bottom, it is less common on soft mud, and rare in peaty water. Its chief food appears to be diatoms, which are ingested from the surface of the mud, stones and weeds on which it lives. Breeding commences in spring (usually in March) and continues throughout the summer if conditions permit (22). It has been proved to be self-fertile (27). This is a point of considerable economic significance, since a solitary specimen transported to a fresh locality or surviving a drought or the clearing out of a ditch, etc., can speedily stock such places.

The eggs are deposited in rounded gelatinous masses on stones, water plants, dead leaves, etc., or loose upon the mud. These masses contain a very variable number of eggs, ranging from 1 to 28 (in the writer's experience) (29). Small snails of less than 1mm. in length hatch out about three weeks later, but the period varies with weather conditions. After hatching, growth is rapid, maturity being reached and eggs deposited by early July. Under favourable conditions a third generation may be hatched in the autumn. The snails are active, and growth continues throughout the year unless interrupted by drought or frost.

Limnaea truncatula is a fairly active species, and crawling against the flow of a stream will soon colonise all available and suitable waters; it is by such means that it will readily spread and invade

very shallow ditches, pools, etc., even reaching temporary pools on grass-land during prolonged wet periods.

Although speedily killed by direct drought (which is undoubtedly its chief natural controlling agent) it can and does survive for quite long periods after water has disappeared, provided that it is afforded a small amount of moisture from dew, damp soil, etc., and is sheltered by vegetation (or earth) from the direct rays of the sun.

Dry periods in spring and early summer are of the greatest value in bringing about a natural reduction in the numbers of these snails, and the absence of such periods can have very serious consequences; wet sunless summers or those with a continuous rainfall are precursors of outbreaks of the disease. Much depends upon the occurrence of rain, and the most favourable conditions for snail reduction are fairly prolonged periods of continuous dry weather. There will, however, always remain certain spots which retain sufficient moisture to enable them to act as "reservoirs" from which, given a return of suitable weather, the snails will re-emerge to recolonise. Even in those places where drought is most severe there is always the chance of a few survivals due to protection afforded by dense herbage, cut grass or rushes, holes made by the feet of stock, or under a fortuitous covering of soil, etc. When left by retreating waters, these snails remain still, with the mouth of the shell pressed close to the ground and the body somewhat withdrawn within the shell: thus conserving moisture, and by this means tiding over short droughts, even if exposed to the sun. It is thus evident that although drought is of the greatest value yet further steps must be taken, and in wet periods drastic action will be needed to check active increase and spread. Dry periods in autumn and winter have little or no effect. Eggs also are speedily killed by drought.

Frost would appear to be of little value as a natural means of snail control (29), whilst the effect on encysted larval flukes has not been demonstrated, as far as we are aware.

The reason for the relative scarcity of this snail on soft mud and peaty soils is, in all probability, due to the absence of a suitably firm substratum. Peat acids may play a part, but a recent study by the present writers (28) shows that *L. truncatula* occurs (in North Wales at any rate) over a range of pH 6.0 to 8.6 (with an optimum about 7.4) and that therefore hydrogen-ion concentration is not of vital importance to these snails.

The snails become adult and can commence to oviposit at a shell

altitude (height) of 4—4.5 mm., but growth continues under favourable conditions as already stated.

Natural enemies appear to be few until a fall in water level exposes the snails to many enemies. The Lapwing is stated to be a useful bird in this connection, but we are unaware of any actual or published evidence. Ducks are certainly of value in clearing limited areas, but considerable experience in this connection points to the necessity for the presence of a considerable flock of an active variety, before any thorough or systematic clearance is effected.

Other species of water snail found living with *L. truncatula* include *Limnaea* (*Radix*) *pereger* (Müller), *L. (galba) palustris* (Müller) and possibly others of the genus: also *Aplexa hypnorum* (Linn.) *Succinia putris* (Linn.) and species of *Planorbis*. The nomenclature here followed is that of Kennard and Woodward (3).

Considerable confusion naturally arises, especially among farmers and others, as to which snails are present in their ditches, and all the above (except *Planorbis*) may be confused with *L. truncatula* by inexperienced observers. Explanation and demonstration of actual differences usually suffices to clear the matter up as regard adult snails, but young examples remain a difficulty and may readily be confused by anyone not having considerable experience. An effort is made in Plate IV to illustrate the main differences between the species.

L. pereger is a larger species than *L. truncatula* with a wider shell aperture and a shorter spire. It is not usually self-fertile, and pairing may be readily observed. It is very abundant and is generally found either on softer mud or more amongst water-weeds than is *truncatula*, and although the two species may be found together this is generally by way of an overlap, with one or other predominant. They may be extremely abundant in closely adjacent environments. *L. pereger* breeds in similar periods to *truncatula*, and the eggs are deposited in irregularly elongate gelatinous masses.

This snail has been accused of acting as an intermediate host to the Liver Fluke, but no actually conclusive evidence is as yet available. The junior writer has conducted a series of critical experiments during the past twelve months, but so far without positive result.

L. palustris rather resembles *truncatula* in appearance, especially when very young; when adult it is larger, thicker, smoother, and darker, with six to seven whorls, the last constituting two-thirds of the shell. It reaches an altitude of 19-24 mm. with a breadth of 8-11 mm.

Aplexa hypnorum has a thin, fragile, polished shell, elongate and tapering; the altitude is 9-13 mm., breadth 4-5 m.m. The animal is blue-black or very dark purple, and seems to tolerate more peaty conditions than does *Limnaea*.

Succinia has an oval thin and almost translucent shell, pale or amber-yellow in colour. These snails are often known as "Amber snails." The spire is short, and the four whorls enlarge rapidly, the last being large and swollen. Altitude 17 mm. (or even larger) breadth about 10 mm. The animal is light coloured, and generally greenish brown. It is common on damp meadows, marshes, etc., and is evidently very resistant to drought conditions, surviving longer than any of the other species discussed.

Although there is no incriminating evidence in the case of the above mentioned snails, no comprehensive systematic examination has yet been made of the various British fresh-water snails from this point of view, and it seems highly desirable that this should be completed. Other species besides *L. truncatula* have been discussed here at some length on account of the confusion already mentioned.

One of the most urgent problems in further researches on the fluke problem concerns the thorough examination of the above mentioned species of snails, as possible host of the fluke. Much is being, and still remains to be done, abroad, to discover and control the intermediate hosts. Various species of *Limnaea*, and allied genera, are responsible in the U.S.A., South Africa, Australia, New Zealand, etc.

CONTROL OF LIMNAEA TRUNCATULA IN THE FIELD.

It will be evident from the foregoing that on wet land, and especially during wet periods means must be sought to destroy the snails and so prevent infestation of live-stock.

Drainage is of great importance, as unless the land is wet for considerable periods the snails cannot persist there. Much obviously can be done to render land permanently free from this menace by suitable and sufficient drainage and by keeping clean and free-flowing the existing ditches, etc. There remain, however, considerable areas of land which are either too costly to drain or which, even if drained, will require some period of time to dry out. It is very important that ditches should be kept free-flowing, free from vegetation, and steep sided; whilst the water from infested ditches and roadsides should not be allowed to flow on to grazing land. The bed of a stream may be cleared of snails, and the sides and banks remain infested.

The remedies suggested prior to 1920 were at best of doubtful value. Lime has, in the writers' experience, not proved of real value as a snail destroyer, and there is considerable evidence from experienced shepherds and farmers that "lime encourages rot" or "liming was followed by liver-rot." The truth of these statements seems to be that the liming of certain infective pastures leads to some improvement in the herbage, followed by closer grazing and consequently a greater tendency to the infestation of the stock, the dressings of lime having failed to eradicate the snails.

As regards salt, this does possess some killing power, but in our experience it is not of sufficient value in this connection even when applied so heavily as to scorch grass-land. Furthermore it is speedily washed away; and is not worth the considerable expenditure involved.

Sulphate of ammonia in heavy applications has proved successful, but at a prohibitive cost.

Several other substances have been tested, in the hope of discovering a cheap, (and if possible manurial) dressing, which would be effective; but several materials which gave excellent laboratory results failed under field conditions; amongst these may be mentioned iron sulphate.

So far, the only really efficient substance is copper sulphate (bluestone). Adopted from the results of workers in the U.S.A., this substance has been fully tested in North Wales and elsewhere since 1921, and has proved to be a cheap and reliable destroyer of the snails and their eggs. (4) (23-27).

Copper sulphate can be used as a spray, as a dust, or broadcasted when mixed with fine dry sand. As a spray dilutions of $\frac{1}{4}$ per cent or even less suffice, but in view of the frequent presence of standing (or even flowing) water, which brings about rapid dilution, it is better in such cases to apply solutions of one or even two per cent in order to allow for this. Again, the amount of fluid to apply requires attention, since a much greater amount will be needed thoroughly and sufficiently to wet land or ditches inhabited by still living snails, but which has become partially or even wholly clear of water, than land which is still thoroughly saturated. The amount required, under experimental conditions, has been found to vary from 80 to 137 gallons per acre.

Dusting is of value for narrow ditches, margins of pools, and other limited areas, and saves the making up of solutions: also for use when clean water is hard to obtain.

The cheapest and best mixture, so far, has proved to be fine ground copper sulphate, 1 part by weight, and kaolin (china clay) four parts. Flour has been substituted by the writers when china clay was not available, and has answered excellently, but is too expensive for general use. The above ingredients should be thoroughly mixed, and applied by means of a hand bellows, knapsack, sulphurator, etc. It was found during experiments that approximately $1\frac{1}{4}$ cwt. of the mixture was required to treat an acre of land ($27\frac{1}{2}$ lbs. of copper sulphate and 110 lbs. kaolin).

Broadcasting is without doubt the best method for the farmer to employ, especially if any considerable area of wet land has to be dealt with. Any reasonably intelligent and experienced man can make this application, which should of course be applied as evenly as possible. One part of finely powdered copper sulphate can be mixed with four to eight parts of fine dry sand. In the experimental work, it was found that the above proportion, viz., $27\frac{1}{2}$ lbs. of copper sulphate and 110 lbs. of sand ($137\frac{1}{2}$ lbs.) were needed to treat an acre of land, but this being a rather small amount for even distribution, the quantity of sand was doubled with equally successful results; a total of $247\frac{1}{2}$ lbs. per acre. The addition of a little china clay is an advantage as a 'tracer,' and shows up the treated land, thus ensuring thoroughness and preventing any overlapping. Unless the land be wet, dusting and broadcasting are best carried out before rain. In any case stock should be kept from grazing treated land, or from watering at treated pools, for at least a week thereafter.

This is indicated by the experiments of Norris in Ireland (13) in 1925, when he found that "copper-sprayed pasture does not appear to be poisonous to sheep, after a week, even if no rain fell during the week after its application." This, be it noted, refers to land sprayed with a two per cent solution, and not to land dusted or treated by broadcasting.

It is doubtful whether manure distributors will prove as efficient as hand broadcasting, as many of the older types tend to apply the dressings in rows, and wet land is often too soft to allow the machine to be taken over it.

As regards cost, copper sulphate can be brought at prices ranging from 3d. to $4\frac{1}{2}$ d. per pound according to the amount required. A guaranteed purity of 98-99 per cent should be insisted on. China clay costs from $\frac{1}{4}$ d. to $\frac{1}{2}$ d. per pound. Much depends upon the cost of labour, sand, cartage, etc., but 10-12 shillings should cover the average cost per acre for materials.

SYMPTOMS OF FLUKE DISEASE.

Although the disease is chiefly prevalent during the late autumn and winter months, it must nevertheless be understood that stock may become infested at any season of the year, provided that suitable conditions prevail; and that such infestations are most likely to occur in mild damp climates, or during a specially mild period. There does not appear to be any really safe time during which dangerous land can be utilised.

The onset of symptoms of the disease naturally depend upon the number of flukes present in the liver, and also upon the age and the type of animal. Young animals (as in all parasitic diseases) are more prone to suffer than are adults. It is generally accepted that if less than 50 adult flukes are present in the liver of the sheep, few if any symptoms will appear, these becoming more serious in proportion as the numbers increase. Hutyra & Marek state (2) that "visible disturbances of health seem to occur in cattle only when at least 250 large flukes are present," and it is certainly true that large cattle can withstand infestations that would kill sheep. Nevertheless serious losses do occur amongst cattle (more especially in young cattle) during epizootics.

The presence of the disease in a flock may sometimes be indicated (apart from cases where a number of sheep exhibit symptoms) by the discovery of flukes in slaughtered sheep, and it is a wise precaution for flock masters to obtain periodic reports on such sheep. In the case of sheep exhibiting symptoms possibly due to the presence of flukes, a definite diagnosis can usually be made from the examination of a sample of the fæces, and this should be undertaken by or through competent veterinary authority.

During normal periods when the chronic types of infestation are usual, sheep would appear to show no observable symptoms for some period after ingesting the parasites. According to the work just quoted the first symptoms include slight fever, dullness, and weakness, followed later by more or less noticeable dropsical conditions. These become progressively more pronounced, and the animal more emaciated and anæmic—this last being well shown by the paling of the mucous membranes—until death finally ensues.

On post-mortem examination flukes will, of course, be found in the bile ducts, and the liver tissues show characteristic changes. Mongomerie (11) has pointed out that there are three main types;

- (a) This type is generally seen during severe outbreaks. Under such conditions a considerable number of sheep die whilst still in good condition, and without exhibiting the typical symptoms already given. The liver is somewhat soft in character with small bleeding points on its surface, whilst the abdominal cavity contains blood-stained fluid. Death in such cases is in all probability due to injury caused by the entry of very large numbers of immature flukes, (which will be difficult to observe). A similar but less marked condition may appear in sheep slaughtered immediately after infestation.
- (b) After more gradual infestation (a longer period having elapsed since the entry of flukes) a second type will be found. Bleeding has ceased, but the points of entry into the liver remain discernible as small cracks or pits. The liver may show white areas externally, whilst internally the bile-ducts will be thickened, and the flukes will readily be observable.
- (c) This is characteristic of the final phases of chronic infestation. The liver has become hardened (cirrhotic) and greyish in colour, the bile-ducts being thick walled, pale, and prominent. Flukes will be large and usually abundant, and may be present in the gall bladder as well as in the ducts.

TREATMENT.

Within the past few years considerable progress has been made in the treatment of this disease and it can now fairly be said that it is both preventable and curable.

The two drugs at present successfully employed are liquid extract of male fern, and carbon tetrachloride. The use of these drugs in this connection has chiefly been investigated by Montgomerie in North Wales (6-12) and Norris in Ireland (13-14). Both drugs should be used only under veterinary advice. Neither of them will destroy immature flukes in the earliest stages of infestation, but deal very successfully with those of older growth. Carbon tetrachloride (which is still under experimentation) promises both to be effective and cheap.

The Plates are from photographs by the junior writer. Fig. 9 has already appeared in 'Agricultural Parasitology,' by Walton and Rees Wright, and Figs. 10 and 11 in Rees Wright (15).

REFERENCES.

- (1) ELLIS, R. A. British Snails. 1926.
- (2) HUTYRA, F. & MAREK, J. Special Pathology and Therapeutics of Diseases of Domestic Animals. Vol. II. pp. 468-491. 1926.
- (3) KENNARD, A. S. & WOODWARD, B. B. Synonymy of the British Non-Marine Mollusca. British Museum (Natural History) 1926.
- (4) "Liver Rot of Sheep and its Prevention." Advisory Leaflet, University College of North Wales, Bangor. Jan., 1926.
- (5) MINISTRY OF AGRICULTURE AND FISHERIES. Leaflet 89. 1921.
- (6) MONTGOMERIE, R. F. Male Fern, its Toxicology and its use in Liver Rot. *Jl. Comp. Path. and Therap.* Vol. XXXVIII, pp. 1-26. 1925.
- (7) ——— Male Fern in Liver Rot of Sheep. A comparison of the Toxicity and Efficiency of Various Brands. *Jl. Comp. Path. and Therap.* Vol. XXXIX, pp. 1926.
- (8) ——— The Treatment of Liver Rot with Preparations of Male Fern; a Historical Survey. *Jl. Comp. Path. and Therap.* Vol. pp. 38-42. 1926.
- (9) ——— Carbon Tetrachloride in Liver Rot of Sheep. *Jl. Comp. Path. Therap.* Vol. XXXIX, pp. 1926.
- (10) ——— Some Miscellaneous Observations on the Anthelmintic Value of Carbon Tetrachloride in Sheep. *Vet. Jl.* Vol. LXXXII, pp. 583-591. 1926.
- (11) ——— Liver Rot of Sheep, its Diagnosis and Treatment. Advisory Leaflet. University College of N. Wales, Bangor. n.d.
- (12) ——— Control of Liver Rot in Sheep. *Jl. Min. Agric.* Vol. XXXIV, pp. 435-443. 1927.
- (13) NORRIS, J. H. Liver Fluke Disease in Sheep and Cattle. *Jl. Dept. Lands and Agric.* Vol. XXV, pp. 155-206. 1925.
- (14) ——— The Control of Liver Fluke Disease in Sheep and Cattle. *Nat. Vet. Med. Assocn. Annual Congress Report.* pp. 111-161. 1926.
- (15) REES WRIGHT W. Studies on Larval Trematodes from North Wales, Part I. Observations on the Redia, Cercaria, and Cyst of *Fasciola hepatica*. *Ann. Trop. Med. Parasit.* Vol. XXI, pp. 47-56. 1927.
- (16) ROEBUCK, W. D. Census of the Distribution of British Land Freshwater Mollusca. *Jl. Conchology.* Vol. pp. 165-212. 1921.
- (17) SIMONDS, J. B. The Rot in Sheep. *Jl. Royal Agric. Soc. England.* Vol. XXIII, pp. 64-159. 1862.
- (18) THOMAS, A. P. Report of Experiments on the Development of the Liver Fluke (*Fasciola hepatica*). *Jl. R. A. S. E.* (series II). Vol. XVII, pp. 1-29. 1881.
- (19) ——— Second Report of Experiments on the Development of the Liver Fluke, *ibid.* Vol. XVIII, pp. 439-454. 1882.
- (20) ——— The Natural History of the Liver Fluke and the Prevention of Rot, *ibid.* Vol. XIX, pp. 276-305. 1883.
- (21) ——— The Life History of the Liver Fluke, *Fasciola hepatica*. *Quart. Jl. Micros. Sci.* Vol. XXIII, pp. 99-133. 1883.

- (22) WALTON C. L. Liver Rot of Sheep and Bionomics of *Limnaea truncatula* in the Aberystwyth area. *Parasit.* Vol. X, pp. 232-266. 1917.
- (23) — Notes on the Liver Rot Epidemic. University College of North Wales, Bangor. 1922.
- (24) — The Liver Rot Epidemic. *Jl. Min. Agric.* Vol. pp. 154-162. 1922.
- (25) — Liver Rot of Sheep. *Jl. Min. Agric.* Vol. XXXI, pp. 1-14. 1923.
- (26) — & Jones, N. W. The Control of Liver Fluke in Sheep, *ibid.* Vol. XXXII, pp. 1-8. 1925.
- (27) — & —. Further Observations on the Bionomics of *Limnaea truncatula*. *Parasit.* Vol. XVIII, pp. 144-147. 1926.
- (27) — & REES WRIGHT. Hydrogen-Iron Concentration and the Distribution of *Limnaea truncatula* and *L. peregra*. *Parasit.* Vol. XVIII, pp. 363-367. 1926.
- (29) — & —. Further Observations and Experiments on the Control of *Limnaea truncatula*. *Jl. Min. Agric.*, Vol. XXXIV, pp. 734-39, 1927.

PLATES.

- Fig. 1. *Fasciola hepatica*; the Liver Fluke.
- Fig. 2. Section through liver of infested sheep, showing flukes in bile-ducts.
- Fig. 3. Egg of *Fasciola hepatica*.
- Fig. 4. Redia of *F. hepatica*; transverse section. Cercariae in various stages of development are seen; note also the extreme tenuity of the sac wall.
- Fig. 5. Sporocyst of 'Cercaria cambrensis I. Note the absence of a digestive sac. (In this species the cercariae are produced from the sporocyst, which is, however, similar in its organisation to that of *F. hepatica*).
- Fig. 6. Redia of *Fasciola hepatica*.
- Fig. 7. Cercaria of *Fasciola hepatica*.
- Fig. 8. Cercaria of *Fasciola hepatica*. (This specimen has just commenced to encyst when killed and preserved).
- Fig. 9. Visceral mass of *Limnaea truncatula* infested with *F. hepatica*. From life.
- Fig. 10. Cercaria of *F. hepatica*. (From life).
- Fig. 11. Ruptured cyst of *F. hepatica*. (From life).
- Fig. 12. Egg masses of *L. truncatula* in situ on a dead leaf.
- Fig. 13. Eggs of *L. truncatula* in various stages of development.
- Fig. 14. *Limnaea truncatula*.
- Fig. 15. *Succinia putris*.
- Fig. 16. *Aplexa hypnorum*.
- Fig. 17. *Limnaea pereger*.
- Fig. 18. *Limnaea palustris*.

VI.—INSECT PESTS OF TOMATOES AND
CHRYSANTHEMUMS.

By Herbert W. Miles, M.Sc. (Bristol), N.D. A.

(Adviser in Entomology, Victoria University, Manchester).

Tomatoes and chrysanthemums are two of the most important of glasshouse crops grown under commercial conditions in the British Isles, and extensive areas are devoted to their culture in the Lea Valley, the Worthing area, parts of Hampshire, South Wales, North Wales, Lancashire and Cheshire, and in the vicinity of large towns and industrial centres.

The two crops follow each other on many nurseries and are cultivated almost to the exclusion of other glasshouse crops, and accordingly pests which attack tomatoes in the summer are often able to remain behind when the tomatoes are cleared out and infest the chrysanthemums when they are taken into the houses for the winter flowering period. Then also insect pests introduced in the soil about the roots of chrysanthemums remain behind and often cause serious injury to the young tomato plants when these are set out in the spring. Because of this inter-relationship it is convenient to treat the insect and allied pests of tomatoes and chrysanthemums together.

The problem of pest control in houses devoted to the culture of tomatoes and chrysanthemums is an important one. The cost of production is high, labour, fuel, seed and the up-keep of the houses being heavy charges on the income of a nursery, and renders it necessary that a high percentage of plants reaches a vigorous maturity. With these crops competition is very keen, for foreign growers, often with great advantages of climate and lower costs of production, are able to market produce in British markets, and to meet this the British grower must produce good quality crops unblemished by insect and fungus damage. The area in which tomatoes and chrysanthemums are cultivated is usually limited and the same glasshouses must frequently produce similar crops year after year. The artificial conditions of temperature and humidity prevailing in glasshouses throughout the year are also favourable to insect and fungus development, and the influence of such natural controlling agents as adverse weather, varying food supplies, and

parasitic and predacious enemies, is so reduced as to be practically negligible. As against these disadvantages there are, however, some conditions distinctly favourable for the control of pests in glasshouses. The confined space limits the range and variety of the pests occurring, and permits the use of intensive measures of pest control inapplicable under field conditions.

INSECT PESTS OF TOMATOES.

1.—PESTS ATTACKING THE ROOT.

Wireworms.

Wireworms, the larvæ of click beetles, *Agriotes* spp., are commonly troublesome in the soil of glasshouses, particularly in those recently erected on grass-land, and to a slightly less extent those newly erected on arable land. They are moreover, occasionally introduced in new soil or in the soil about the roots of chrysanthemums. The pest lives in the soil, and feeds on decaying vegetation and attacks the roots of various crop plants. The mode of attack on tomatoes is characteristic. The wireworms enter the stem just below the surface-feeding adventitious roots and tunnel upwards (*figure 1*) for about five to eight inches. In land heavily infested several wireworms may occur in each stem, and the attacked plant stops growing, wilts and dies. In a case under the writer's observation, out of 2,196 tomato plants set out in a new nursery 580 were killed by wireworms, and growers frequently state that they may lose half of their plants from attack by this pest.

The wireworm hatches from a minute egg laid in the soil. It is more or less omnivorous, feeding upon decaying organic matter and upon root fibres and germinating seeds. Wireworms vary in length from $\frac{1}{2}$ to $1\frac{1}{2}$ inches, according to the species and the stage of development. They are slender, rather flattened, with a tough, shiny, yellow or orange-brown skin, a wedge-shaped head, well defined body segments and three pairs of legs. The wireworm stage lasts about five years, during which the wireworms move freely about the soil, descending during the cold and drought and returning to the surface when conditions are favourable. At maturity the wireworm descends some distance in the soil, forms an oval earthen cell and pupates. In the spring, after emerging from the pupal cell the beetle leads an active life feeding on foliage and flowers along the hedgesides and in grass and arable fields. The beetles are dark chestnut brown, from $\frac{1}{4}$ to $\frac{1}{2}$ an inch in length, somewhat flattened and elliptical in form, with shiny elytra or wing cases

covering a pair of membraneous wings for flying. On being disturbed the beetles fold in their legs and fall to the ground as if dead. When placed on their backs they spring up with a clicking sound, which has earned them their popular name.

Control measures. The common method of dealing with this pest in glasshouses is trapping by means of cabbage stumps pushed into the soil head downwards, or partially buried carrots placed at frequent intervals throughout the houses. Many wireworms can be caught in this manner but the process is slow and the daily examination of the baits requires considerable time. Recent experiments by Miles and Petherbridge (8) indicate that a cheaper and more effective method of dealing with wireworms in glasshouses is to sow wheat or oats 2 or 3 inches deep, in rows 2 feet apart, while the house is not being used for cultivation. Wireworms are attracted to the germinating seeds and assemble in considerable numbers at the bait rows. In about a fortnight, when the green shoots indicate the position of the baits, commercial calcium cyanide in granular form, can be applied by means of a hand seed drill fitted with a deep plough attachment to enable the cyanide to be applied just below the bait. In experiments, $1\frac{1}{2}$ to $2\frac{1}{4}$ lbs. of granular calcium cyanide per 150 yards gave over 90% control of the wireworms assembled in the bait rows, and examination of the soil between the rows showed that almost all the wireworms had assembled at the baits.

Chafer larvæ.

Where new land has been enclosed for tomato culture the large white grubs (*figure 2*) of the cockchafer, *Melolontha vulgaris* Fab., and its allies may cause some injury to the first few crops, but as time goes on the pest gradually disappears. The grubs are comparatively large and dirty white in colour, with the body contents showing through the skin especially in the tail region of the abdomen. The head is brownish yellow with large strong jaws. When unearthed the grubs are usually found lying on their sides with the tail bent forward underneath the body. The grubs feed at the roots of the plants, and if sickly or flagging plants be examined early in the morning a chafer grub may be found at the roots close to the surface soil. Later in the day the grubs are only found with some difficulty for they work their way deep into the soil and at night come near the surface to feed. When fully fed the grubs construct earthen cocoons in which they pupate at considerable depth in the soil. The adult beetles are the familiar May bugs or cockchafers, common in the early summer. Where infested houses

are baited for wireworms or leather jackets the chafer larvæ will also be attracted and can be dealt with in a similar manner. In addition careful search about sickly plants should be made when the presence of chafer grubs is suspected.

Leather jackets.

The larvæ of crane flies, *Tipula* spp., popularly known as "leather jackets," are sometimes injurious to tomatoes, particularly the first year after new land has been broken up and enclosed for glasshouse work. Since the life cycle is completed in a year and the crane flies which emerge escape from the glasshouses, usually before egg laying, the outbreak gradually diminishes until it dies out completely. When tomatoes are alternated with chrysanthemums, leather jackets may be taken into the houses in the soil about the roots of the latter plants, and in the succeeding season considerable damage may be done to the tomato crop. Crane flies occasionally deposit their eggs among the weeds which develop on the top of soil stored in nurseries, and subsequently the young leather jackets may be taken into the glasshouse when fresh soil is required there.

The greyish brown, tough skinned, legless maggots of the crane fly or "daddy-long-legs," commonly known as "bots" in the north of England, are readily recognised. The head is dark and more or less pointed, and can be thrust out or withdrawn into the body at will; at rest it is usually retracted and this gives the insect a cylindrical appearance. The hind end of the body is truncate and several stoutish projections or tubercles are present. The maggots tunnel about in the soil and feed upon the roots of plants, at or below the soil level; at night they may leave the soil and attack portions of the plant above ground. When fully fed they measure from 1 to 1½ inches and change into pupæ in the soil. Immediately prior to the emergence of the adult the pupa works its way half out of the ground by means of backwardly projecting spiny processes; the pupal case then splits and the crane fly escapes leaving the empty brownish case protruding from the ground.

Control. In tomato houses trapping the leather jackets by means of squares of turf half buried in the ground is effective; numbers of the pest collect beneath the turves which should be examined daily and the assembled maggots destroyed. Leather jackets will also collect at germinating wheat or oats, sown as bait as described for the control of wireworms, and they can then either be dug out or the bait rows can be treated with granular calcium



FIG. 1
Tomato Stem tunnelled by Wireworms

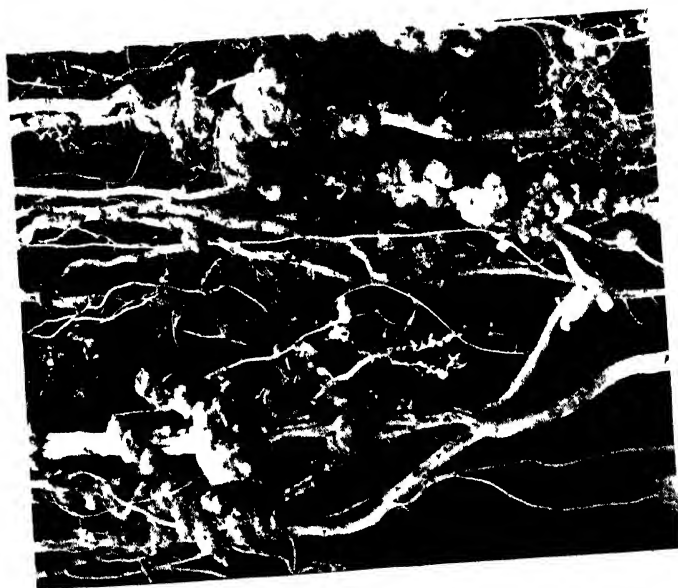


FIG. 4
Roots showing characteristic galls of the Root Knot Eelworm.

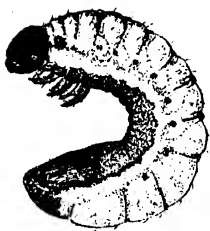


FIG. 2.
Charler Grub.



FIG. 3.
The Greenhouse Centipede.
S. immaculata.

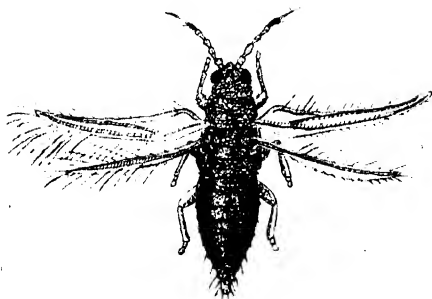


FIG. 5.
The common Greenhouse Thrips.
H. haemorrhoidalis.

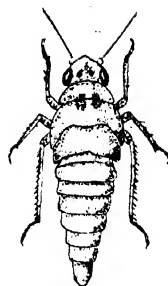


FIG. 7.
Tomato Leaf Hopper
(Nymph.)

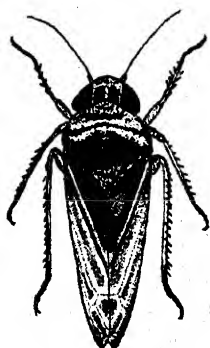


FIG. 6.
Tomato Leaf Hopper.
E. parvula (Adult.)

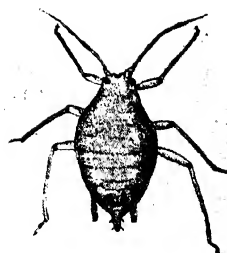


FIG. 9.
Wingless Female of the Peach
Aphis. *Myzus persicae*.



[Photo by H. Britten, F.E.S.]

FIG. 8.

Adults, Nymphs and empty scales of White Fly (much enlarged.)

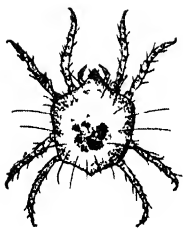


FIG. 10
The Greenhouse Red Spider



FIG. 11
Part of stem and leaf
showing web of Red Spider



FIG. 14
The Caterpillar of the Angle
Shades Moth

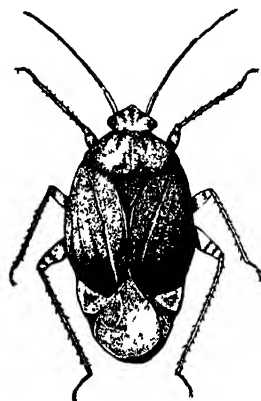


FIG. 12
The Turnshod Plant Bug
Lygus pratensis



FIG. 15.
Chrysanthemum Shoot attacked by the
Chrysanthemum Midge (after MacDaniel.)



FIG. 16
Leaf showing injury by the
Chrysanthemum Leaf-miner.



FIG. 13. *Chrysanthemum* Leaves showing injury by *Lygus pratensis*.
 (Photo by H. Britton)

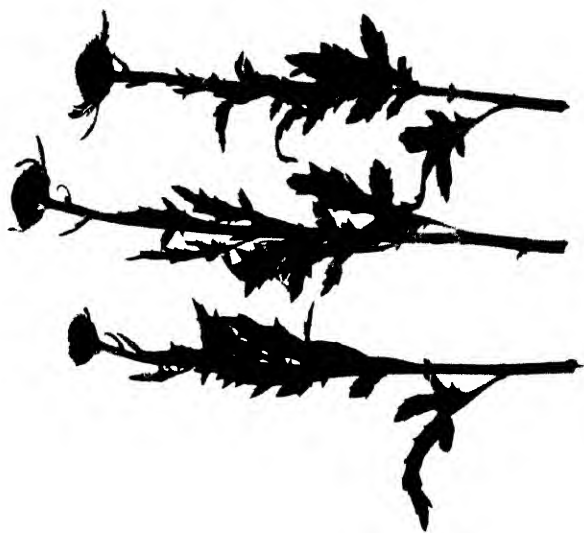


FIG. 17. *Chrysanthemum* Buds with aborted petals caused by
 (Photo by H. Britton)

cyanide. Paris green and bran may be used as a poison bait. The bran should be moistened with water until the particles just fail to adhere to each other, then the paris green added and well mixed in. The proportions of the two materials are : 1 lb. of paris green to 30 lbs. of bran. The bait should be sprinkled in the evenings on the soil between the plants at the rate of $\frac{1}{2}$ to 1 lb. per 50 square yards.

Centipedes and Millipedes.

The garden centipede, *Scutigera immaculata* Newport, known in Guernsey as the "white insect," is responsible for a certain amount of injury to tomatoes. It usually occurs in considerable numbers in infested houses, and numbers of plants are lost each year as a result of its depredations. The garden centipede (*figure 3*) is a small white animal varying in length from 3 to 6 mm., and possessing a pair of segmented antennae and twelve pairs of legs. After the centipede has been feeding the food material in the digestive canal shows through the body and gives it a darker or tinted appearance. The pest occurs most abundantly in moist soil and is most numerous in early summer. The eggs are laid in clusters in the soil ; they are translucent white in colour, becoming denser before hatching takes place. On hatching the young centipedes have only seven pairs of legs and are about a millimetre long (6). As growth takes place moults occur and extra pairs of legs develop.

The creatures feed on the succulent tender roots of a variety of plants, but under glass are most usually found at the bases of tomato plants, the young roots of which are gnawed and scaled as fast as they are produced. With newly set out plants the demolition of the new roots causes wilting and many plants fail to become established and perish.

In addition to this centipede, the spotted millipede, *Blanjulus guttulatus* Bosc., occasionally occurs in numbers at the bases of sickly plants, but to what extent it contributes to the sickly condition is not known with any certainty. The creatures measure about half an inch in length, are yellowish in colour, and have smooth cylindrical bodies spotted along the sides with reddish purple spots.

Control. Paradichlorobenzene and calcium cyanide have been used as soil fumigants against the garden centipede. The former was applied at the rate of one ounce per yard of plant row, close

to and on both sides of the plants ; but though some measure of control was obtained the results were not considered entirely satisfactory (19). Calcium cyanide applied in solution a few days before planting has given indications that it might prove efficient against millipedes and centipedes, but the exact dosage has not yet been determined.

Root Knot Eelworm.

Tomatoes are particularly susceptible to the attacks of the root knot eelworm, *Heterodera radiculicola* Mull., which produces the very characteristic galled condition shown in *figure 4*. Infested plants become sickly, show a tendency towards wilting, become yellowish in colour, and often succumb early to the attacks of fungi which enter through the wounds made by the minute eelworms. The eelworms occur in the soil, and by means of needle-like stylets in the head end of the body bore their way into the roots of the plants, and within the root tissue they feed and develop. After entering the roots they become less active and commence to grow, the females becoming swollen and pear shaped, and the males retaining their elongate form. After fertilization the females become greatly distended and just large enough to be seen with the naked eye if the galls are broken open carefully. At low temperatures the eelworms are inactive, and they pass the winter either in the decaying galls or in the soil, and the succeeding crop becomes infested from these sources early in the following season. The pest is most serious in moist situations and on light open, sandy soil. On infested soils it is not uncommon for every plant to be heavily attacked and the roots galled for the greater part of their length.

Control measures. These take the form of cultural treatment and the application of vermicidal treatment like soil sterilization and the use of chemical vermicides.

Cultural methods include the thorough working of the soil during the winter, and as the eelworms seem to be very susceptible to drought, drying the soil might prove a satisfactory control measure ; but the carrying out of these methods of control involves the sacrifice of a second crop in the glasshouse. All infested roots should be dug from the soil and burnt, not merely pulled up as this usually means that the greater portion of the infested roots are left behind in the soil. Every effort should be made to keep down weeds for many species of weeds are attacked by the pest, the writer having found in tomato houses docks, persecaria,* and bindweed showing the characteristic galling due to the root knot eelworm.

Steam sterilization which aids in the control of this pest is being increasingly used in connection with commercial horticulture and a full account of a satisfactory method, using the small grid system, is given in Leaflet No. 209 issued by the Ministry of Agriculture and Fisheries. Chemicals which have been used from time to time against root knot eelworm include carbon bisulphide, formalin, cresylic acid and sodium cyanide. During the last few years calcium cyanide has been used both in solution and in granular form, and applied to the soil during the winter this material gives promise of yielding a satisfactory measure of control.

2.—PESTS ATTACKING THE STEMS, LEAVES AND FRUITS.

Thrips.

Thrips are among the most injurious of glasshouse pests. They are minute insects with mouth parts specially adapted for rupturing plant tissue and sucking the sap; and as they frequently occur in vast numbers, young and adults feeding together in the same manner, the loss of sap occasioned by their feeding may result in serious injury to the plant. The foliage of attacked plants becomes spotted with white where the plant cells have been drained of their contents, and in severe attacks these bleached areas turn brown and shrivel. Attack is common on tomato seedlings and may cause severe check to the growth or even kill the plants.

Thrips are usually yellow, brown or black in colour, about $1/25$ to $1/20$ of an inch in length, and the adults are distinguished by the possession of two pairs of narrow wings deeply fringed round the entire margin. Some species readily spring or fly when disturbed, and attack is spread by means of winged adults. The eggs are laid about the leaves and stems of plants; those species of thrips with saw-like ovipositors lay their eggs singly within the plant tissue, and those without ovipositors lay their eggs externally, singly or in small clusters about the undersides of leaves and on the stems. The eggs are somewhat bean-shaped, a translucent white when first laid but becoming a denser white as the embryo develops. The length of the egg stage varies with the species of thrip, the time of the year and the prevailing temperature conditions, but appears to be usually from one to two weeks.

The newly hatched nymphs crawl about for a short time before settling down to feed. They usually feed in colonies on the under-surfaces of leaves and while feeding excrete globules of liquid which dry and turn black, rendering the plant unsightly in a characteristic manner. The nymphs moult about four times, the

wing pads increasing in size at each moult after the second, and the insect remaining stationary during the later stages. After a period of from two to three weeks the adult insect emerges.

The species of thrips most commonly met with in tomato houses are *Thrips tabaci* Lind., and *Heliothrips haemorrhoidalis* Bouché.

Thrips tabaci is a small, rather active species of thrip, widely distributed throughout the world and causing injury to both indoor and outdoor plants. The adult is pale yellow to yellowish brown in colour with a darker area on the thorax. The eyes are brown and the antennae and legs dark. The wings are pale with dusky fringes. The insects measure from 1 mm. to 1.25 mm. in length, or approximately 1/25 of an inch. The nymphs, which are pale yellow and rather less active than the adults, are frequently found feeding together in small colonies. This pest also occurs commonly on smilax, arums and carnations.

Heliothrips haemorrhoidalis (figure 5), is one of the commonest of the glasshouse infesting thrips. It is dark brown in colour with pale wings and legs. The antennae are pale with dark tips. The adult insect measures about 1.5 mm., or about 1/20 of an inch. This species usually confines its attacks to the undersurfaces of leaves. Small spots appear where the sap has been withdrawn, and these spots extend until a mottling or patching of the foliage occurs. In the British Isles other common host plants include roses, fuchsias, palms, ornamental citrus spp., azaleas, orchids, arums and ferns.

Heliothrips femoralis Reut. has also been recorded on tomatoes. It is dark brown to black in colour, with the head, prothorax and the tip of the abdomen reddish yellow. The legs are yellowish, the fore pair being lighter than the others. The wings are dusky with faint lighter areas.

Control measures. Thrip control in glasshouses is largely a question of cultural treatment. Adequate water supply to the roots of the plants should be maintained together with proper ventilation. As regards direct methods of control, some success has been achieved by means of naphthalene fumigation, Hartzell (4) securing a measure of control with 1½ ozs. per 1,000 cubic feet in America. In England fumigation with 6 ozs. per 1,000 cubic feet was found to destroy thrips in Sussex in the month of July. Calcium cyanide has also been used against thrips and with dosages of 1/4 to 2/3 oz. per 1,000 cubic feet has given up to 70% control. Routine fumigations would be necessary to keep the pest in check with this

material. Refined petroleum emulsion is now being used experimentally and gives some indication of yielding a satisfactory measure of control where the infestation is localised. Careful watch should be kept on plants growing near hot water pipes for thrip attack often starts on these plants and then spreads through the crops.

Leaf-hoppers.

Two leaf-hoppers which commonly occur in glasshouses and may be found attacking tomatoes are *Erythroneura parvula* Boh., and *E. pallidifrons* Edw. The damage caused by these insects is characteristic, the foliage becoming covered with tiny white areas which merge into one another when infestation is severe. These bleached patches are caused by the insects draining away the contents of the plant cells when feeding. Badly attacked leaves present a mottled appearance, gradually cease to function, and finally shrivel.

The adults of the two species closely resemble each other. When seen at rest *Erythroneura parvula* (figure 6) appears yellow with overlapping wings extending some distance beyond the tip of the abdomen. The head is conspicuous and has two distinct black spots at the top. Behind the head the thorax is dusky and between the wing bases are two large triangular black spots. The wings are a transparent white, with a dark band passing backwards and inwards along each wing so as to form a V-shaped mark across the back of the resting insect. The legs are yellow with dark tips. The insect is slender and about 3 mm. in length. *E. pallidifrons* is paler and more iridescent, and though the same length, appears more slender and elongate than *E. parvula*. The legs are paler yellow and the tips less dusky. The dark areas on the wings are similar to those on the wings of *E. parvula*, but much less pronounced. The eggs of *E. parvula* are laid within the leaf tissue of various weeds growing in or near the glasshouses, and the writer has found them in tomato foliage in Guernsey. On hatching the nymphs (figure 7) are very active and run over the plant when disturbed. They usually feed on the undersurfaces of the leaves and the cast skins which they leave about the plant, generally attached by the rostrum, have earned for them the name of "ghost insect." Eggs, nymphs of various stages, and adults can be found about the plants at the same time, and several generations of the pest occur during the year. Young tomato plants are especially liable to attack by these hoppers, the cotyledons often being entirely bleached and the growth of the plants seriously checked.

Control. The multiplication of these insects can be checked by keeping down weeds within and in the vicinity of the glasshouses, for it is on weeds that many of the eggs are laid. A nicotine spray applied as a fine mist and directed well among the plants so as to reach both surfaces of the leaves will kill many of the young hoppers. If attack by this pest becomes very severe fumigation with nicotine at the rate of one ounce per 5,000 cubic feet will give adequate control.

Mealy bugs.

The mealy bug, *Pseudococcus maritimus* Erhr., is widely distributed throughout the world and has a wide range of host plants in the British Isles, attacking, in addition to tomatoes, such plants as azaleas, amaryllis, nephrolepis, orchids and vines. In Guernsey the pest frequently attacks tomatoes and instances of tomatoes being infested have also occurred in North Cheshire.

The fully developed female is elongate oval and covered with white mealy wax. The wax is thin or missing from the edges of the body segments, and as the insect moves the reddish or pinkish yellow colour of the body can be seen. The body is fringed with short processes and at the posterior end are two longer processes. Mature specimens of the females measure from 3 to 4.5 mm. in length. When ready to oviposit the insect constructs a cottony egg-sac among the fibres of which the eggs are laid. Mealy bugs collect in clusters about the nodes of the plant and between the leaf stalk and the main stem, and with their egg-sacs make dense waxy masses not easily penetrated by insecticidal substances.

Control. Every effort should be made to cleanse infested houses before the introduction of the young tomato plants; walls and woodwork should be hosed down very thoroughly, the walls washed down with cresylic acid and the wood work repainted after a thorough scrubbing, and if sterilizing with steam is possible the soil should receive this treatment. When the plants are introduced they should be sprayed periodically with a soap and nicotine wash consisting of soap to lather and $\frac{1}{2}$ to $\frac{3}{4}$ ozs. of nicotine per 10 gallons of water, or with a refined petroleum emulsion at the strength recommended by the makers. These sprays will destroy the mealy bugs and can be used satisfactorily where infestation is localised. Spraying, however, is difficult and impracticable in an extensive crop of plants which have attained any size, and fumigation is the best method to adopt in such circumstances. For this purpose calcium cyanide at the rate of $\frac{1}{5}$ to $\frac{1}{4}$ oz. per 1,000 cubic feet may

be used, and fumigations conducted every 10 to 14 days, care being taken that the plants are dry at the roots and the glasshouse temperature kept constant during the fumigation.

White fly.

The greenhouse white fly, *Trialeurodes vaporariorum* Westw., is a pest of considerable importance in connection with the production of tomatoes. The pest is practically a general feeder and is recorded as attacking a variety of plants in addition to tomatoes: potato, cucumber, vegetable marrow, runner beans, calceolarias, hollyhocks, dahlias, heliotrope, chrysanthemum, azalea, freesia, arum, verbena, irisine, cineraria and coleus. The insect frequently occurs in vast numbers, and both adults and immature forms (*figure 8*) obtain sustenance by inserting their stylets into the plant tissue and sucking up the juices. Much of the financial loss caused by the white fly is due to the unsightly appearance of infested plants. The continuous secretion of honey dew upon the foliage provides a medium for the development of fungi, and it then becomes necessary to wash and wipe all the fruit before it can be packed for market.

The adult white flies are familiar to most growers. They are tiny, moth-like insects with delicate, powdery white wings. In the summer they may be found within and without the glasshouses, for during the warmer weather the white flies breed on a variety of weeds and cultivated plants out of doors, and in Guernsey where the winters are usually mild, the pest can continue out of doors throughout the year. The immature forms are less obvious, and their scale-like appearance renders it difficult for the grower to associate them with the adult form.

The small greenish eggs are attached to the undersurface of young leaves by means of a stalk inserted in the leaf tissue; they are arranged in a more or less complete ring, and then covered with a waxy secretion characteristic of the insect in all its stages. The eggs gradually darken until in a few days they become quite black. The period of incubation varies considerably with the season and temperature, Lloyd (6) finding in 1922 that 13 to 16 days were required in August and as long as 117 days during the winter season.

On hatching a minute scale-like insect emerges. It possesses limited powers of locomotion and only moves sufficiently to free itself from surrounding eggs and scales. It then flattens itself against the leaf, inserts its stylets into the tissue and gradually

becomes covered with waxy secretions. The immature white fly passes through four scale-like stages, increasing in size at each moult but increasing only in thickness between the moults. This phase of its development lasts from 17 to 35 days, variations occurring with the nature of the host plant, the temperature and the season of the year. At the final moult the adult winged insect emerges. The adult fly is quite active, and may be carried by draughts or wind for some distance from its original food plants, thus spreading infestation to other plants or glasshouses. It generally seeks the undersurfaces of young leaves for egg laying sites, except in cases of severe attack when both surfaces of the leaves may be infested.

Control. Within recent years a chalcid parasite, *Encarsia formosa* Gahan., has been found to cause a high mortality of white fly. The adults are small active insects which oviposit in the scales of the white fly. The parasite develops inside the scale stages of the white fly, which turn black so that the parasitised scales can be readily distinguished. This insect has been studied in detail at the Cheshunt Research Station (14) and has been successfully introduced into several commercial nurseries in the Lea Valley, where it appears to be establishing itself and spreading further afield. The parasite within the scales is apparently resistant to the fumes of hydrocyanic acid gas, nicotine and naphthalene, so that where these substances have to be used they will not be likely to exterminate the beneficial parasites as well as the insect pests.

Under ordinary commercial conditions fumigation with hydrocyanic acid gas seems to be the most effective control measure against the white fly though tetrachlorethane may also be used. Where the pot method of generating hydrocyanic acid gas is employed, $\frac{1}{4}$ oz. of sodium cyanide per 1,000 cubic feet should be used ; with calcium cyanide $\frac{1}{6}$ to $\frac{1}{4}$ oz. per 1,000 cubic feet is necessary ; and if the sodium cyanide-bicarbonate of soda mixture used at the Cheshunt Research Station (15) is selected, 1oz. of the mixture per 1,000 cubic feet is required. The temperature during fumigation should not be lower than 50°F. nor higher than 70°F., and the plants should be dry at the roots ; the fumigation should not start until an hour after sunset and the houses should be opened up next morning before the rays of the sun strike them. Fortnightly to three-weekly fumigations at these dosages seem to keep the white fly well under control. In houses of the lean-to type, especially where these adjoin dwelling quarters, tetrachlorethane should be used for fumigation, $\frac{1}{4}$ to $\frac{1}{2}$ pint per 1,000 cubic feet

being recommended, and the temperature should be between 65° and 80°F. Since this fumigant does not appear to have any effect on the eggs of the white fly routine fumigations, as in the case of hydrocyanic acid gas, are necessary.

Aphides.

Aphides, green fly or plant lice as they are variously called, are among the most ubiquitous and persistent pests in glasshouses. The insects may be present in densely massed colonies on certain host plants which seem favourable to the development of the pest, or in odd, restless, small colonies on plants which may be less suitable. In the former case the insects secrete copious quantities of a fluid known as "honey dew," on which moulds readily develop and give the plants an unsightly appearance; the leaves of the attacked plants become malformed, twisted and distorted, they decrease in size and become variegated and mottled. Where only small colonies become established the stunting and malformation is often more than the number of insects present seems to warrant. As the plants reach maturity or commence dying off as a result of attack, the aphides migrate by crawling to adjacent plants or produce winged forms which fly to other similar plants or to another host species.

Myzus persicae Sulz., the green peach aphid (figure 9). The wingless females of this species are from 2 mm. to 2.5 mm. long and are varying shades of green, pale yellow and even pinkish, individuals of various colours often occurring in one colony. *Myzus persicae* is abundant and widespread, and is common both out of doors and under glass. It has a wide range of host plants in addition to the tomato, and the writer has taken it frequently on the following: smilax, tulips, freesias, carnations and *Solanum capsicastrum*; certain weeds, including chickweed, may be also attacked.

Macrosiphum rosae Linn., the rose aphid. This species which usually occurs on roses has also been recorded as attacking tomatoes (16). The wingless females which occur in colonies on the young shoots of roses, are characteristically red though there is some slight variation in colour, greenish varieties occasionally appearing. This is a common pest in rose houses, and it may spread to tomatoes when these are grown in the vicinity of rose trees.

Macrosiphum gei Koch. Both green and pink forms occur among the wingless females of this species. The head is greenish and bears a few short hairs. The insect measures about 4 mm. Host plants include rose, tomato, potato, tulip and cineraria.

Macrosiphum pelargonii Kalt. This aphid is pale green in colour but shows slight variation for some individuals appear dull and others shiny. The insects are from 2.5 mm. to 3 mm. in length. Theobald lists (16) among the host plants of this species, geraniums, chrysanthemums, cinerarias, arums, tomatoes, calceolarias and carnations.

Control measures. Aphis control in tomato houses can be easily secured by routine fumigations with nicotine or hydrocyanic acid gas. When only a few plants are attacked a spray containing half an ounce of 98% pure nicotine to ten gallons of water, with soap to make a lather, is quite satisfactory; but where the infestation is general throughout the house fumigation will be found more suitable. For this purpose nicotine may be used; it should be diluted with an equal part of either methylated spirit or water, and vapourised over a lamp at the rate of two ounces of the mixture per 5,000 cubic feet. Hydrocyanic acid gas is toxic to aphides and if used under the right conditions gives excellent results. Calcium cyanide is perhaps the most suitable source of this gas for the fumigation of commercial glasshouses. This material gives satisfactory control of the aphides attacking tomatoes at dosages varying from 1/7 to 1/2 oz. per 1,000 cubic feet. In practice (7) it is found most advisable to employ a low dosage and carry out two or three fumigations at weekly intervals, maintaining the temperature between 60° and 70°F. during the fumigation and applying the cyanide to the dry paths of the house, first making sure that the foliage of the tomatoes is not wet. The destruction of weeds within or in the vicinity of the glasshouses is an essential part of the control of aphides, for weeds may harbour the pest or may act as alternate hosts when the crop is not present.

The tomato moth.

The tomato moth, *Hadena oleracea* L., sometimes causes heavy losses in tomato houses. The damage is done by the larvæ which devour the foliage of tomato plants, attack the developing fruits and bite into the stems. The damaged fruits represent the most serious loss to the grower for two or three fruits on a truss may be injured by a single caterpillar in a night.

The moth measures about 1½ to 1¾ inches across the expanded wings. The forewings are purplish brown to brownish fawn and the hind wings are greyish; the male and female have the same wing colouration. The moths are rarely seen in the day-time; they are essentially nightfliers and during the day hide in the glasshouses

under clods of earth, among the mulch at the roots of the plants, and in crevices and dark corners about the woodwork, walls, ventilators, and gutterboards of the houses. At dusk the moths become active and in their endeavours to escape from the houses are usually attracted to the western and south-western corners which are illuminated by the sunset (5). They feed on the juice of broken ripe tomatoes.

The female moths which are very prolific, greatly outnumber the males. The eggs are laid in large batches, generally on the undersides of leaves; the number of eggs in a batch and the number of batches laid being greatly increased if food is available for the moths. The colour of the eggs ranges from green to white when laid, but they turn yellow during incubation and immediately before hatching turn black. The eggs hatch in from seven to eight days, the entire batch hatching at the same time.

The larvæ at first feed on the undersurfaces of the leaves leaving the upper surface intact, but as they get older the entire leaf is devoured. As with the moths feeding takes place chiefly at night, the larvæ hiding about the plants during the day. The larvæ vary in colour; all the young larvæ are green, but the older larvæ may be green, light or dark greenish brown, yellowish green and even yellow. They are speckled with black and white dorsally, and the white spiracles with black dots between lie along a bright yellow lateral line. When fully fed the caterpillars measure up to $1\frac{3}{4}$ inches in length. When ready to pupate the larvæ seek out suitable sites in the crevices of the walls and woodwork, in the mulch, on the surface layer of the soil, and occasionally on the leaves of the plant. They spin a light silken cocoon in which pupation takes place. The pupa is almost black, smooth and shiny. The length of the pupal stage varies from three to four weeks in the summer brood to several months in the case of the autumn brood which hibernates as pupæ. In glasshouses there appears to be three broods a year.

Control measures. Since the larvæ of the tomato moth flourish on some of the weeds common within and without glasshouses, some check is obtained by the removal of such plants as goosefoot (*Chenopodium*) and knot grass (*Polygonum*) from the vicinity of the houses; and the removal of all broken fruits deprives the female moths of food and thus reduces the number of eggs laid.

Several direct measures against the pest are recommended. Spraying with lead arsenate at the rate of 6 lbs. of paste to 100 gallons of water, with the addition of 2 ozs. of saponin to prevent

the mixture from settling, will contribute to the control of the first brood of larvæ. The spray should be applied three times : when the seedlings are in pots, just after planting out, and about one month prior to fruit picking, owing to the fact that the moths emerge over a long period. Systematic moth trapping should be carried out throughout the growing season : 120 to 160 jars baited with ale and treacle mixed with 1% sodium fluoride are sufficient for an acre. The bait is mixed in the proportion of 2 fluid ounces of ale, 1 fluid ounce of treacle, and $\frac{1}{30}$ oz., or sufficient to cover a sixpence, of sodium fluoride. The dead moths should be removed frequently and the jars rebaited every three weeks to keep them attractive.

Hand picking of the leaves infested with colonies of young larvæ helps to keep down attack, and mature larvæ can be readily trapped by providing them with pupation sites in the form of sacks placed about the houses. The sacks should be dipped in boiling water every third week so as to destroy congregated pupae before the emergence of any adults can take place. The steam sterilization of the soil which is becoming routine practice on many nurseries destroys pupae hibernating in the soil.

Red spider.

One of the most serious pests with which the glasshouse horticulturist has to contend is the red spider, *Tetranychus telarius* L. (*figure 10*). Formerly negligible, within recent years its attacks have greatly intensified and there is evidence that the range of its host plants has considerably extended. Injury seems to be caused mainly by the feeding of the female spiders during the period of oviposition. They congregate on the under side of the leaves, and in heavy infestations about the stems and fruit, and their presence is indicated by the appearance of tiny bleached areas on the leaves where the red spiders have been feeding. As the attack develops the bleached areas merge, the infested leaves droop and shrivel, and webbing (*figure 11*) is noticeable about the leaves, buds and shoots. The growth of the plant is checked or becomes "hard," the shoots which develop are thin and weak, and there is a marked diminution in the yield.

The spiders usually pass the winter as gregarious adults in a bright red, inactive stage highly resistant to cold ; they can be found about crevices in the walls, woodwork and fittings of the glasshouses, about the canes and in other available shelter. Under favourable conditions of temperature and food supply some dull,

greenish yellow forms continue feeding and breeding slowly throughout the winter. In the spring the hibernating forms again become active and commence egg laying.

The eggs are laid on the under surface of leaves. They are minute, spherical, and white at first, gradually turning yellow with age; they hatch in from four to seven days and a sluggish yellow mite emerges. Speyer (11) records that the feeding of the young mites does no apparent damage. The mites mature rapidly, the males requiring only five days to reach the adult stage and the females seven days. Breeding is continuous during the summer, and fresh invasions of the pest through the ventilators and doors occur constantly. Parasites of the red spider include the larvæ of a cecidomyid fly, *Therodiplosis persicae* K., which feed on all stages of the red spider in tomato houses (11).

Control measures. Red spider has proved highly resistant to the sprays and fumigants commonly used for the control of pests in tomato houses. Houses known to be infested should be cleared of the pest as far as possible before a new crop is planted. This is best done by fumigating with naphthalene in the autumn before the old crop is removed and the spiders pass into the highly resistant winter stage. Grade 16 naphthalene, naphthalene which has passed through a sieve of sixteen meshes to the inch, should be applied along the paths, after all the fruit is picked, at the rate of 6 lbs. per 100 feet of path. The border should be watered if necessary to obtain a relative humidity of at least 80% and the temperature should be raised until it is well over 70°F. The house should then be closed down for at least twenty-four hours. Where this procedure is followed by the winter cleaning of the empty house with a spray of cresylic acid and soft soap, applied so as to penetrate into the crevices of the woodwork and metal work, about the ventilators and ridge capping, it will do much towards ridding the house of the red spider.

The new crop should be carefully observed for the first signs of red spider attack and the infested leaves removed and burned as a routine practice. Some growers prefer to take extra precautions and burn the entire plant to prevent the spider from spreading. Another method of dealing with the initial stages of an outbreak is by spraying. A spray of liver of sulphur and potash soft soap has been suggested by the Cheshunt Experimental and Research Station (12) but the preparation of this for use on a commercial scale is complicated. A spray which gives indications of being satisfactory is a highly refined petroleum (1), suitably emulsified,

which can now be obtained for commercial purposes (18). The great difficulty with regard to spraying in large houses with a well advanced crop of tomatoes, is that of wetting the entire leaf surface ; and though the application of a spray may temporarily check the development of the pest it cannot be regarded as an adequate means of controlling red spider.

The most reliable and accurate method of fumigating tomato houses is to vapourise naphthalene by means of specially constructed lamps evenly distributed about the houses, and to maintain the concentration for at least twelve hours under suitable conditions of temperature and humidity. All fruit which is ready or almost ready for market should be picked in order to avoid tainting by the naphthalene fumes. Certain conditions appear to be necessary for successful fumigation with naphthalene, and the most important of these are high humidity, 80% to 95% relative humidity being suitable, and a temperature of 70°F. or over. The period of exposure varies according to the time of year and to the local conditions, but twelve to fourteen hours appears to be satisfactory. The fumigation should be conducted over night, commencing between 5 p.m. and 7 p.m. and airing out about 7 a.m. The dosage is as yet not clearly defined ; 6 to 10 ozs. have been used in the British Isles for the fumigation of tomatoes (9), though Hartzell (4) recorded 100% kill of red spider on tomatoes in America as a result of repeated fumigations with a dosage as low as 1½ ozs. per 1,000 cubic feet.

Woodlice.

Woodlice frequently occur in large numbers about tomato houses, particularly in autumn and winter when they congregate under clods of earth, in crevices, under bricks and stones and pieces of wood. Several species are reported to occur, Speyer (10) recording eleven species in glasshouses in the Lea Valley, *Armadillidium speyeri* J. and *A. vulgare* Lat., being of most importance. The usual food of woodlice appears to be decaying organic matter, but when this is not available or when the woodlice occur in large numbers the crop plants are attacked. They gnaw at the stems of the plants, eat irregular holes in the leaves, sometimes removing a large portion of the leaf surface, and they also attack young roots.

Control. When the pest is not too prevalent its numbers may be reduced by trapping with inverted flower pots or seed boxes containing straw, pieces of mangold, or beet cut in half and the cut surface laid on the soil. These traps should be examined daily and the woodlice assembled there destroyed.

When woodlice are present in large numbers an effective means of control is that recommended by Speyer (11). One pound of commercial paris green should be thoroughly mixed with 28 lbs. of dry bran ; the mixture is best prepared by shaking up appropriate quantities of the two materials in a large tin. This bait should then be broadcast over the surface of the soil at the rate of about half an ounce per square yard. Since the mixture is very poisonous care should be taken when handling the bait and it is advisable that the operator wear a glove when applying it.

Slugs.

Slugs are a persistent pest in glasshouses where they attack and destroy seedlings, devour young foliage and shoots of more mature plants, and injure roots and underground stems. During the day the slugs hide in the soil, at the roots of weeds or crop plants, under pots, boxes or boards, and in any moist dark places available. About dusk they leave their hiding places to obtain food and continue feeding until early morning when they once more seek their hiding places.

Agriolimax agrestis L., the garden slug, occurs commonly in glasshouses into which it is introduced on the bottoms of empties, pots and boxes, in potting soil and manure, or it may crawl in under doors. The colour varies somewhat, whitish, yellow, light and dark brown and even purplish specimens occurring ; this slug is usually spotted with dark brown dorsally. When mature it measures up to an inch and a half in length. The eggs are laid in clusters of from 4 to 8 or in large batches of from 20 to 50, and can be found in damp soil, under boards, pots or stones. The eggs are spherical and translucent white at first, becoming yellowish and opaque as the embryo develops. Hatching takes place in about a month and the young slugs remain in close proximity for some time, feeding on broken or decaying plant tissue. At first they develop slowly and do no damage, but as growth takes place they become dispersed and attack sound, healthy plant tissue. As they reach maturity they feed voraciously, and in one night a few slugs can cause heavy losses among seedlings or newly set out plants.

Control. Trapping carried out as a routine measure aids in reducing the numbers of the pest. In order that the trapping should be successful, all loose boards, seedling boxes, pots, etc., not in use should be removed so that the number of suitable hiding places is diminished. Boards, sacks, cabbage or lettuce leaves, or scooped out halves of oranges or grape fruit should be laid down

in places suitable for the slugs, and should be examined daily, the congregated slugs being removed and destroyed. Where infestation is very heavy and localised some immediate benefit might be derived from entering the glasshouse at night with a light and collecting the slugs from the plants.

In the absence of a crop finely ground copper sulphate, applied at the rate of 1 lb. per 40 square yards, should be worked into the soil. The slugs which come in contact with the copper sulphate are killed, and the presence of the material in the soil appears to act as a deterrent and protect the succeeding crop. Since many slugs hide about the crevices in the walls it is advisable to treat the bases of the walls of the glasshouses with a solution of copper sulphate, 1 lb. to 20 gallons of water, this amount being sufficient for 20 yards of wall. Before applying, the soil should be pulled away so that the solution can be flooded in. It is advisable to carry out this treatment with copper sulphate as long as possible before the new crop is set out.

Where the growing crop is attacked a light sprinkling of dry Bordeaux mixture may be worked into the surface soil. Should a little of this powder fall on the leaves of the plant in the course of application no harm will be done. As an alternative treatment the paris green-bran mixture as used against woodlice (p. 79) may be employed, but the bran should be slightly moistened before using.

INSECT PESTS OF CHRYSANTHEMUMS.

Chrysanthemums, which are grown part of the year out of doors and part of the year under glass, are liable to be attacked by a variety of pests; moreover, when they are taken indoors in the autumn many of the insects infesting them out of doors are introduced into the glasshouses, and under the more favourable conditions develop and multiply, often causing more injury than when they occur in the open. In the normal cycle of development of the chrysanthemums there are three distinct phases: the striking of the cuttings under glass, the growth of the young plants in the open ground, and the subsequent lifting and taking indoors for the flowering period. In the cutting stage the plants are susceptible to infestation by aphides and leaf miners. When first set out of doors in the open ground soil insects are the most important pests to be considered, for their activities may result in mortality among the new plants and make replacements necessary; as the plants develop the leaf and shoot infesting insects are of greater importance,

leaf miners, aphides, leaf hoppers and frog hoppers, capsid bugs and caterpillars all being likely to occur. With the transfer into the glasshouse some of these pests may develop to a serious extent. In the following pages the most important pests attacking chrysanthemums in their various stages are discussed.

1.—INSECTS ATTACKING THE ROOTS.

Wireworms, leather jackets, and chafer larvæ or white grubs may destroy numbers of young rooted cuttings when these are planted in the out-of-door beds. The wireworms bore into the stem and tunnel upwards, speedily causing death; leather jackets gnaw at the underground parts of the stem and almost sever it, and chafer larvæ bite off the young roots and gnaw at the stem; these last two pests bring about gradual wilting and withering, and finally the attacked plants perish. When plants are seen looking sickly they should be carefully lifted with a good ball of soil, and the roots, stem and soil examined over a sheet of paper, when the insects responsible can usually be found. The control measures recommended against these pests have been discussed on pages 62-64. The baiting and cyaniding method may be used with success out of doors and working powdered naphthalene into the soil at the time of setting out the plants would probably be worth trying as a repellant though its insecticidal value is low.

2.—PESTS ATTACKING LEAVES AND FLOWERS.

Earwigs.

Earwigs, *Forficula auricularia* L., are occasionally responsible for injury to chrysanthemums blooms and occurred abundantly in North Cheshire in the autumn of 1927. The insects frequent the blossoms, gnawing at the petals and covering the flowers with frass, spoiling their appearance and making them so ragged as to be quite unmarketable. Numbers hide by day in the curled leaves, in the hollow canes and amongst the petals. As the cold weather approaches the earwigs leave the flowers and seek winter quarters; odd ones may remain for some time but these too ultimately disappear. Trapping with pots stuffed loosely with straw and inverted on canes about the beds may be resorted to in cases of heavy infestation, but this must be accompanied by a thorough cleaning out of weeds, rubbish and dead leaves so that all natural places of shelter are removed.

Capsid bug.

Lygus pratensis L. var. *campestris* is sometimes a serious pest of chrysanthemums and has been found by the writer on chrysanthemums under glass in Sussex and Cheshire. Infestation occurs when the plants are outside during the summer and the injury continues to a less extent after the plants are brought into the houses.

The mature insect, commonly known as the tarnished plant bug (*figure 12*), is about a quarter of an inch in length, a greenish colour mottled with reddish brown, and with a yellowish V-shaped area at the overlapping of the wings. The thorax is paler, yellowish green; the legs are long and yellowish and have darker bands near the tips of the femora. The adult and immature forms of the plant bugs feed by piercing the plant tissue and sucking the sap through a long beak or rostrum. The flow of sap is stimulated by an outward flow of salivary fluid which probably aids in breaking down the plant cells. The effect of the feeding of *Lygus pratensis* on chrysanthemums is that the foliage loses its characteristic form and becomes puckered and misshapen (*figure 13*), and the shoots become stunted or slightly twisted and produce malformed flowers.

The eggs of *Lygus pratensis* are white and somewhat flask shaped with a slightly curved neck. They are inserted in the stems of many wild plants like docks, nettles, groundsel and fleabanes which act as alternate hosts. The winter is usually passed in the egg stage and in the spring, when the host plants are making new growth, the young capsids emerge. They are pale yellowish green, very active, with well developed legs and a stout rostrum. The various stages of the nymphs are marked by moults and the wings gradually develop, and from midsummer onwards adults appear in numbers.

Control. The control measures described for leaf hoppers on page 70 are suitable for the control of *Lygus pratensis*. It is advisable to keep a close watch on the chrysanthemum plants in the early part of the summer and, as soon as the capsid bug is observed, spraying with soap and nicotine should be carried out.

Leaf hoppers and frog hoppers.

Two leaf hoppers which may infest chrysanthemums are *Eupteryx melissae* Curt. and *E. auratus* Liv. *E. melissae* is 3 mm. in length, slender and with wings exceeding the length of the body. On the top of the head are three black spots and on the thorax six, the inner four extending back into a dusky area. There are also two distinct black spots between the wing bases. The wings

are pale green, beautifully mottled with brown and with the tips brownish. *E. auratus* is greenish yellow with two black spots on the top of the head. On the thorax are two large black areas with two small black spots between. Between the wing bases are two large black spots separated by a pale streak which widens into a triangle as it passes backward. The wings are greenish yellow with an irregular dusky stripe passing backward from the base towards the tips. *E. melissae* occurs commonly on sage and *E. auratus* is abundant on nettles and potatoes, and it is probably from these plants that infestation spreads to chrysanthemums.

The common froghopper or cuckoo-spit insect, *Philaenus spumarius* Linn., frequently occurs on chrysanthemums out of doors, and is often brought into the glass-houses with the plants in the autumn. The colour varies considerably, but the most common form has the head and fore part of the thorax yellow, and brownish wings with two large yellowish patches on the front margins. The insects are 5--6 mm. in length, broad in proportion, and the wings extend only slightly beyond the tip of the abdomen. When disturbed the insect jumps a considerable distance. The nymphal stages of this insect can be readily recognised by their habit of exuding a frothy substance under which they feed and shelter. *P. spumarius* is a general feeder and breeds on an extensive variety of weeds.

Control. The measures discussed for the control of leaf hoppers on tomatoes (page 70) are also applicable for the control of leaf hoppers and frog hoppers on chrysanthemums.

White Fly.

The white fly, *Trialeurodes vaporariorum* Westw., is occasionally troublesome on chrysanthemums but the pest does not readily take to this host plant; when it occurs it is frequently a legacy from the previous crop or from more favourable host plants in the vicinity. The pest occurs on chrysanthemums most commonly on nurseries where mixed hothouse plants are grown and where the heat is kept on practically all the year round. The white fly has been fully dealt with on page 71.

Aphides.

Several species of aphides attack chrysanthemums but the following are those most commonly met with.

Macrosiphoniella lineatum Van der Goot. The wingless females of this insect are about 5 mm. in length. They are green to greyish

green in colour with dark green central markings. The antennae are somewhat brownish, the legs green with dark tips, and the eyes are large and reddish brown. Apterous males may occur in the glasshouses in autumn; they are very active, brown to reddish in colour, and wander restlessly about the plants, falling from the leaves at the least disturbance. This pest is also found out of doors on *Artemisia* spp.

Macrosiphoniella sanborni Gill., the dark chrysanthemum aphid, or the chrysanthemum black fly. The wingless females which occur in dense colonies on the shoots and stems of chrysanthemums in the late summer, autumn and winter, are shiny blackish red and measure up to 2 mm. in length. The pest is widely distributed and is common wherever chrysanthemums are grown, but it appears to be confined to this one host plant. It occurs out of doors and is frequently taken into the glasshouses with the plants.

Anuraphis helichrysi Kalt., the leaf curling plum aphid. This species is rather common in the blossoms of chrysanthemums where it causes considerable distortion and renders the flowers unfit for market. In 1927 it occurred in Cheshire attacking the terminal shoots as well as the flowers. Infested flowers are rather loose and the petals are limp; the central petals often turn slightly green and the outer petals hang down, becoming brownish and discoloured. The tiny, pale, yellowish green aphids swarm at the bases of the petals and often cannot be seen without careful inspection.

Other species of aphides which may occur on chrysanthemums include *Myzus circumflexus* Buck., the mottled arum aphid, and *Aphis rumicis* L., the bean aphid.

Control measures. The control measures for aphids have been dealt with on page 74.

The Angle Shades Moth.

The larvæ (figure 14) of the angle shades moth, *Phlogophora meticulosa* L., are becoming a widespread and serious pest in chrysanthemum houses. They feed on a variety of plants, the writer having found them on *Asplenium*, *Nephrolepis*, *Cineraria* and *Artemisia*, and Theobald records them (17) as doing serious injury to violets in frames. Infestation is often very severe; in 1926 a Worthing grower collected two jam jars of caterpillars in a house 100 ft. by 15 ft.; and growers report that the pest shows a marked preference for white chrysanthemums, sometimes occurring on yellow, but only rarely¹ on mauve or bronze

varieties. The caterpillars are brown or green, minutely dotted with white, and with a pale dorsal line with dusky oblique markings, and a pale lateral stripe in which are the black rimmed spiracles. When mature they measure up to two inches in length. The caterpillars hatch from eggs laid on the foliage and feed for a time scaling off irregular patches of the surface tissue, leaving the lower layers of the leaves unbroken. Later they ascend the plants and feed on the flowers, lying amongst the petals during the day. Older larvæ hide by day and attack the flowers by night, sometimes devouring the buds or biting them so that the resulting flowers are deformed. When fully fed the larvæ enter the soil and make a cocoon of soil particles held together by silk. Within this cocoon a shiny, chestnut brown pupa is formed, and the adult moth emerges after from two to four weeks.

The adult moth has pale rosy fawn forewings with an olive green triangular patch about the middle and a border of the same colour. The hind wings are greyish. Both pairs of wings are deeply scalloped and are folded longitudinally when the moth is at rest. In the open there are two broods a year, the second brood feeding throughout mild winters; but in glasshouses there is a succession of broods, the pest maturing rapidly in the warmth and shelter.

Control. Since the pest normally feeds upon many weeds such as groundsel and dock, one of the first steps towards reducing the loss caused by the pest is to remove such plants from the vicinity of the chrysanthemums. Collecting the larvæ by shaking pot plants over paper and by searching among the foliage and flowers of infested plants should be carried out wherever practical. Theobald (17) suggests that baiting for the moths; the beer and treacle and sodium fluoride mixture used for the tomato moth (page 75) would probably be satisfactory.

The Chrysanthemum Midge.

This midge, *Diarthronomyia hypogaea* F. Lw., was recorded for the first time in this country as a pest of chrysanthemums in 1927, but for some years it has been highly injurious to glasshouse chrysanthemums in America.

The insect responsible for the damage is a minute, smoky fly, with a reddish yellow abdomen, and measuring about 1/15 of an inch in length. It deposits its eggs about the young shoots of the plants, among the leaf hairs or the folds of newly opening leaves or on the young stems, and in severe infestation about the buds and flowers. The eggs are elongate oval, orange in colour, and

laid in irregular masses ; incubation requires from five to six days. The young larvæ are orange coloured and within about twenty-four hours after hatching they bore their way into the leaf tissue. In about a week after the larvæ enter the leaf tissue the irritation set up begins to result in gall formation (*figure 15*). The galls are somewhat oval in shape, about $1/12$ of an inch in length, and stand obliquely off the surface of the leaf. At first they are rather inconspicuous and can be best detected by drawing the leaf through the fingers, but as the larvæ develop the galls become more marked and the tips discoloured rendering them more easily visible. The larvæ feed and pupate within the galls. Prior to the emergence of the adult the pupa works its way partly out of the gall, so that when the pupal case splits the fly easily frees itself into the air. Emergence is said to occur between midnight and five o'clock in the morning. The adult life is very short ; mating and oviposition quickly follow emergence, and the adults rarely live for more than a day.

Attacked chrysanthemums rapidly lose their vitality, the leaves become swollen and distorted and the stems thick and stunted. Infestation seems most intense in the spring and again in autumn, and serious losses may be incurred in the spring when the new plants are developing and in the autumn when the flower buds are opening. Some varieties seem to be more susceptible to attack than others, and in the Lea Valley "Monument," "Cheshunt White," "Mrs. Barrell" and "Everlasting" are the varieties most seriously infested.

Control. The insect is vulnerable only during the egg and adult stages and various measures have been suggested for its control (3). Spraying with a contact insecticide appears to destroy the flies as they escape from the galls. For this purpose nicotine sulphate (40%) at the rate of $\frac{1}{2}$ pint to 50 gallons of water with soap to lather, or pure nicotine (95—98%) at the rate of $\frac{1}{2}$ pint to 80 gallons of water with soap to lather may be used. The soap should be well mixed with the water before adding the nicotine in order to increase the efficiency of the spray ; some of the specially prepared liquid potash soaps are well suited to this purpose. The spray should be applied every second or third day for a month or six weeks according to the severity of the infestation.

The pest can be controlled by fumigation with either hydrocyanic acid gas or nicotine ; if the former is chosen sodium cyanide at the rate of $1/8$ to $1/4$ oz. per 1,000 cubic feet or the equivalent dosage of potassium or calcium cyanide will give satisfactory results, and

nicotine can be used at a concentration of one ounce per 5,000 cubic feet. Fumigations should be conducted at two or three day intervals, or even more frequently if infestation is very heavy, for a period of four to six weeks.

When chrysanthemums are cut down to produce new growth for cuttings the beds should be thoroughly cleaned of leaves which might harbour the pest, and as new growth develops routine spray-with nicotine wash should be commenced. When cuttings are taken special care should be given to their selection so as to eliminate any infested shoots, and the cutting beds should be removed as far as possible from infested stock. Where necessary spraying with nicotine should be continued in the cutting beds. Where midge attack is suspected on plants brought indoors for flowering in autumn periodic spray treatment or fumigation should commence as soon as the plants are under cover.

Chrysanthemum leaf miner.

The foliage of chrysanthemums and other cultivated *Compositae* is often disfigured by the mines or tunnels of the larvæ of the fly, *Phytomyza atricornis* Meig. The white, yellow or brown tunnels (figure 16) are often very conspicuous and if closely examined or held up to the light the location of the insect may be discovered. If the leaf is carefully opened either a white, legless, semi-transparent maggot, or an oval, brown, swollen puparium will be found. If infested leaves are kept in a box or under a glass the adult fly can be obtained. It is a small, dark greyish, two-winged fly, with a rather small body and comparatively large wings. The females deposit their eggs in the leaf tissue and the resulting larvæ produce the characteristic mines. Though some larvæ may be found in the leaves at almost any time of the year, the insects appear to be present in the greatest numbers and cause most injury in the spring and early summer, especially to newly established plants and cuttings. In severe infestations the lower leaves of the cuttings and young plants may be entirely brown except for the green tips owing to the tunnelling of the larvæ. In one such case the writer counted twenty-seven puparia in one leaf.

The insect suffers severely from the attacks of parasites. In one instance the writer reared sixteen parasites and only six *Phytomyzas* from some infested leaves.

Control. When control measures are necessary it is usually on young plants and a soap and nicotine spray used periodically will be found to give satisfaction. In frames fumigation at regular

intervals can be carried out. Whatever control treatment is adopted it is essential to make it routine practice for successive broods of adults appear from wild hosts, and older plants in the vicinity are a constant source of reinfestation.

Chrysanthemum Eelworm.

This eelworm, *Aphelenchus ritzema-bosi* Schwartz, produces a characteristic dying off of the lower leaves of chrysanthemums, some varieties appearing more susceptible to the disease than others. The lower leaves first present a scorched appearance, the edges turning yellow, then gradually brown and the whole leaf dies and falls from the plant. The remainder of the foliage becomes mottled as with a mosaic disease, and puckering and distortion, known as "oak leaf" frequently occur. In cases of severe attack the flowers may be infested to such an extent that the petals are dwarfed, twisted or entirely destroyed before leaving the bud (*figure 17*).

The eelworm is able to remain in an inactive condition in the soil for a long period, even under adverse circumstances. When suitable moisture conditions arise the eelworms pass up the plant to the leaves either by means of the stem, leaves in contact with the soil, or leaves in contact with weeds growing close to the ground. The eelworms gain admittance to the leaves by means of the stomata or pores.

Control. Little can be done in the way of direct control measures against this pest, for once it is within the leaf it cannot be reached by sprays or fumigants. Much can be done, however, by growing varieties which appear resistant, collecting and burning attacked leaves to prevent the soil from becoming contaminated, by keeping down weeds, and by growing cuttings in soil free from the pest. Some growers reduce the amount of infestation by this pest by taking the tips from newly struck cuttings and re-striking, thus leaving behind the portions of the plant which may have become infested. The field of soil sterilization has as yet been little explored in connection with this pest.

Slugs.

Some injury may be caused to chrysanthemums by slugs. This pest and control measures suitable for combatting it are discussed on page 79.

The writer is indebted to Mr. F. Laing[†] of the British Museum, Dr. J. Davidson of Rothamsted, and Mr. H. Britten of the Manchester

Museum for their kindness in identifying some of the species dealt with. He is also grateful to Mr. Britten for taking some of the photographs. Thanks are also due to Dr. Walton, and Messrs. H. L. Jones, W. L. Henderson and W. Chase for their kindness in arranging for visits to nurseries and for supplying specimens from time to time.

REFERENCES.

1. DEONG, KNIGHT & CHAMBERLAIN. (1927). "*Hilgardia*," II. No. 9.
2. FEYTAUD, (1926). "Contrib. a l'etude des Symphytes," ex. *Rev. Zool. Agric. et Appliquée*.
3. HAMILTON, (1924). *Maryland Agric. Expt. Sta. Bull.* No. 249.
4. HARTZELL, (1926). *Journ. Econ. Ent.*, XIX, p. 780.
5. LLOYD, (1920). *Ann. Appl. Biol.*, VII, p. 66.
6. " (1922). *Ann. Appl. Biol.*, IX, p. 1.
7. MILES, (1927). *Ann. Appl. Biol.*, XIV, p. 243.
8. MILES & PETHERBRIDGE, (1927). *Ann. Appl. Biol.*, XIV, p. 359.
9. PARKER, (1925). *Hort. Trades Journ.*, Sept. 30th.
10. SPEYER, (1925). *8th Ann. Rept. Cheshunt Res. Sta.*
11. " (1925). *11th Ann. Rept. Cheshunt Res. Sta.*
12. " (1926). *12th Ann. Rept. Cheshunt Res. Sta.*
13. " (1927). *Gardeners' Chronicle*, Nov. 12th.
14. " (1927). *Bull. Ent. Research*, XVII, p. 301.
15. SPEYER & OWEN, (1926). *Ann. Appl. Biol.*, XIII, p. 144.
16. THEOBALD, (1926). *Aphididae of Great Britain*, Vol. I.
17. " (1927). *Journ. S. E. Agric. Coll.*, XXIV.
18. TURNER, (1927). *Fruitgrower*, Aug. 27th, p. 246.
19. WYMORE, (1924). *Journ. Econ. Ent.*, XVII, p. 520.

VII.—THE MANURING OF SUGAR BEET.

*Brynmor Thomas, M.Sc., A.I.C., Armstrong College,
Newcastle-upon-Tyne.*

The rapid development of the beet sugar industry, and the consequent increase in the acreage of land now carrying beet crops, involves the annual expenditure of large sums of money on artificial fertilisers. There is reason to fear that insufficient knowledge of the manurial requirements of the sugar beet results in a considerable proportion of this money being spent to poor advantage. The margin of profit left by the best crops is never large, and it is desirable that no part of it should be absorbed in the purchase of ineffective or unnecessarily expensive manures.

Numerous investigations into the manuring of beet have been

carried out in Continental countries, but it would be idle to suppose that the conclusions arrived at are of necessity applicable under our own conditions of soils and climate. The requisite knowledge must, therefore, be obtained through the medium of experience and observation, and by a close study of experimental results obtained on typical English beet soils.

The following pages are devoted to a discussion of the nutritive requirements of the sugar beet in so far as they are understood, and an attempt to ascertain from the results of recent experimental work the extent to which the resources of our soils must be supplemented in order to meet these requirements.

SUGAR BEET SOILS.

The ideal beet soil may be described as a deep, open loam which is free from stones, easy to work and readily penetrated by roots. Good drainage and a sufficiency of lime are two essentials and, if really big crops are to be grown, the land must be of considerable inherent fertility. The alluvial silt of South East Lincolnshire may be cited as a soil type which possesses most of the requisite qualities, and is capable of being worked to a great depth. This last point is of paramount importance, indeed it is no exaggeration to say that a soil which is incapable of deep cultivation is no suitable medium for the culture of sugar beet. The long tap root of the beet may penetrate to a depth of 3 feet or more, and any interference with its downward progress results in malformation. The desirability of growing straight, well formed beet is referred to elsewhere; it need only be pointed out here that there is a close relationship between the shape of the root and the sugar content. Where a hard pan exists at or below the customary depth of working, and subsoiling or some other method of breaking the consolidated layer has not been resorted to, the conditions are not such as are likely to produce a satisfactory crop. The writer was concerned, in the summer of 1927, with a case in County Durham, in which a pan occurred at a depth of 8 inches. Although the soil was a good alluvium and had been well done, the crop was poor, 90% or more of the roots were badly forked and the sugar content was low.

The number of growers who have at their disposal land such as that described above, is relatively few, but there is ample evidence that beet culture can be, and is, a business proposition on soils which vary widely from what may be considered the ideal. Dowling¹ states that "Successful crops can be obtained on almost any soil

that will produce a fair crop of mangolds, providing there is sufficient depth." As a general rule clay soils are not well adapted for beet growing; they can seldom be made to produce heavy crops of shape and quality, and lifting may be troublesome and expensive in a wet autumn. Light, sandy soils, if in good agricultural condition, are frequently good beet soils. Fen soils, such as exist in South Eastern England, may, or may not, be capable of growing satisfactory crops. The black soils of Lincolnshire and Cambridgeshire are usually described in text-books as consisting of "neutral humus"; but a closer acquaintanceship reveals the fact that very large areas of this land are in so sour a condition that they will not grow beet under any circumstances. Black land, when it does contain sufficient lime, can produce large yields albeit the roots are usually of poor shape and quality. This lack of quality is not a very serious matter when the tonnage is satisfactory.

SOIL ACIDITY IN RELATION TO SUGAR BEET.

It is well known that the common farm crops differ widely in the degree of tolerance which each exhibits towards soil acidity. Lime deficiency is never a limiting factor with oats or potatoes under ordinary agricultural conditions; these crops will do well upon land demonstrably incapable of growing barley or clover. Swedes, wheat and other crops occupy intermediate positions on this scale of tolerance.

Until recently scant attention appears to have been paid to the soil reaction best suited to the growth of sugar beet with the unfortunate result that many farmers, growing beet for the first time on excellent potato soils, have experienced disastrous failure. In some of these cases there was no recognition of the real cause of the trouble and failure followed failure.

It has been the experience of the writer in South East Lincolnshire, and more recently in Durham, that a half crop of beet may usually be attributed to an abandonment of the practice of liming during the past three or four decades, and an imperfect appreciation of the susceptibility of sugar beet to acid soil conditions.

It seldom happens that any one field is uniformly sour throughout its entire area, indeed it is not unusual on some soil types to find small patches showing a high "lime requirement" though the surrounding land contains 1 or 2% free carbonate of lime. Even though an entire field is badly in need of lime, certain portions

of its surface usually exhibit a greater degree of acidity than others. It is upon these worst patches that the crop first shows signs of failing. An average germination may possibly be obtained in the first instance, and the young plants may make a certain amount of progress, but sooner or later a stage is reached at which growth ceases. In bad cases a very large percentage of the beet eventually disappear, and the few survivors are so stunted and malformed that they may easily be lifted with finger and thumb. Figures 1 and 2 provide admirable illustrations of this state of affairs. Rose², in his Report on liming experiments at Houghall in Durham County, describes the effect of soil acidity on sugar beet as follows : "On the control plot receiving no lime, and on the plot receiving calcium carbonate at the rate of one ton per acre, the germination was poor; there was however a sufficient number of seedlings in the drills to produce a crop had growth after germination been satisfactory. As it was the seedlings showed no growth on the two plots mentioned and the plants did not reach a height of 3 inches throughout a growing period of 5 months." The same worker states elsewhere that "sugar beet is undoubtedly the most sensitive of our farm crops to acid soil."

Even on land which, though still on the wrong side of neutrality, is not sour enough to produce the effects described above, an appreciably reduced tonnage may be anticipated, while the presence of one or two really bad patches in an otherwise moderate crop will probably make all the difference between profit and loss. Although loss of tonnage is the most serious result of acidity, there is some evidence to show that the sugar content of the crop is also reduced.

In view of the adverse effects which acidity has been shown to exercise on sugar beet, growers who intend to take a crop on land which has never previously carried it would do well to consider the advisability of having a few soil samples taken and tested by an expert. The neglect of such a simple precaution as this may easily result in serious financial loss. If one beet crop has already provided a partial failure characterised by the symptoms already described, if the land will not grow good mangolds, or if the analyst's tests show the soil to be sour, then the obvious remedy should be applied. The actual time of application is of some importance; the liming of really sour land only two or three months previous to drilling is not always entirely effective, although the dressing may have been generous. Unless the lime can be applied, at latest, early in the previous autumn, it is advisable to bring the

land under some less susceptible crop and to defer the growing of sugar beet until another season.

When beet is to become a regular rotational crop, the best course is to maintain the land in sweet condition by periodical applications of lime. Only on soils known to contain considerable reserves of carbonate of lime should this practice be neglected. Dowling¹ states that "all sugar beet soils should receive periodical dressings of lime without exception."

MANURIAL TRIALS.

With the commencement of sugar beet growing on a large scale, many people looked across the Channel in the belief that Continental growers could teach them all that was to be known concerning the crop. It did not appear to have been realised that the Frenchman or the German is usually working under very different conditions to those obtaining in this country, and that, though he has had a century of experience on his own soils, that experience is not necessarily of value elsewhere. On many aspects of the sugar beet question he has taught us much, and can teach us more, but we must ascertain for ourselves the manurial treatment most appropriate to our own soil types.

During the preparation of this article the writer has fully availed himself of the published reports of such experimental work upon sugar beet as has been carried out in this country during recent years. A review of this rather scanty literature cannot fail to impress one with the very small store of useful information which scientific workers have been able to place in the hands of the practical sugar beet grower. It would be inconsistent with scientific honesty to base anything but the most tentative conclusions upon some of the results which have been obtained—indeed at some centres the differences between plots are too insignificant to admit of any conclusions whatsoever.

Ling³, after carrying out manurial trials at some 17 centres on many different soil types, states: "Examination of results from all centres shows quite clearly that no very outstanding differences have been obtained either in the yield per acre or the sugar content on manured plots." The same worker states, with reference to the effect of manuring on sugar content: "A glance at the figures from each centre will suffice to show that the variations plot for plot are not very great, and in the majority of cases come within the limits of experimental error."

These results are excused on the grounds of season and unsuitable situation ; the plots at many of the centres having been laid down on land which was by no means poor. With full cognizance of the fact that many experimenters consider a piece of poor land to be necessary for the proper conduct of manurial trials, it may be remarked that a very large proportion of the sugar beet produced in this country is grown upon land which is not poor. Hence it is of the first importance that farmers should know how to grow good beet on good land, a problem which, judging from some of the crops one occasionally sees, is by no means so easy of solution as it might at first sight appear.

The writer's own experience of experimental work on sugar beet leads him to think that the disappointing results obtained by competent and painstaking workers is due merely to inexperience of a crop which requires in the experimenter a much finer technique than do some of the more common farm crops.

That the greatest care should be exercised in choosing land for the conduct of field trials is recognised by most investigators. A slight lack of uniformity in the soil of the area under experiment may entirely nullify the results obtained. Sugar beet, in both the size and quality obtained, appear influenced to an extraordinary degree by the soil upon which they are grown. The application of artificial manures, whatever be the size or composition of the dressing, can only affect sugar content within narrow limits, and plot to plot differences, which under ideal conditions would be small, are entirely obscured by slight variations.

The writer recalls one trial involving a large number of beet stocks in which the old side-by-side arrangement was adopted without any replication. On testing the beet it was found that the sugar content rose from plot to plot with great regularity, showing extremes of 14% at one end of the series and nearly 19% at the other. A glance at the figures sufficed to stamp the results as valueless. The results of some manurial trials published within recent years make it equally obvious that the situation of the plots has been ill-chosen, such variation in yield and sugar content as occur resulting not from differences of manurial treatment, but merely from inequalities of the land.

The ancient single plot side-by-side system may be good enough for demonstration purposes when visible differences are assured ; such an arrangement is wholly inadequate for serious experimental work on sugar beet. Exact knowledge of the manurial require-

ments of the crop will only come with the more general adoption of modern methods of field experiment and appropriate replication of plots.

ORGANIC MANURES.

There are a large number of organic manures which may on occasion be used for beet. Such special purpose fertilisers as Peruvian guano, dried blood and fish meal may prove of value on some light land, but they are too expensive, and probably too slow in action, to admit of their economic application on a large scale. Shoddy and other waste materials of this class are quite unlikely to find general favour as beet manures on account of the relatively low availability of their nitrogen. The only organic manures of any real or potential importance in connection with beet, are farm-yard manures and green manures of various kinds. The latter appear to have given considerable satisfaction to continental growers who do not, however, consider the ploughing in of a green crop to be as effective as the application of an average dressing of dung. As comparatively little experimental work has been carried out in this country on the subject of green manuring for sugar beet, the writer will confine himself to the question of farm-yard manure.

Where land has been well done, and is in really good heart, the use of dung or any other organic manure is by no means essential. In potato-growing districts many excellent crops may be seen which have been raised with the aid of artificial manures alone, and this on land which has received no dung during a period of three or four years. There is, however, general agreement that, where dung is available for the purpose, moderate dressings should be applied.

The weight to be used per acre should not in any circumstances exceed 15 tons; the dressing usually recommended being one of 10 tons. For reasons stated below, the use of excessive quantities is to be deprecated.

Great importance attaches to the time of application of the dung which should be ploughed into the land during the autumn previous to drilling. Application at any later date is not to be recommended.

The effects of delaying the application of farmyard manure, or of excessive dressings, are in the main similar to those resulting from an overdose of nitrogen. There is abnormal development of

top with delayed ripening and consequent reduction in sugar content. The fangy of a large percentage of roots is frequently attributed to the misuse of organic manures, although it is probably more often a result of inefficient cultivation. The presence of any considerable proportion of fangy roots in a consignment has the undesirable effect of increasing "tare," and almost certainly exercises an adverse effect on sugar content.

NITROGEN REQUIREMENTS.

It is customary to apply a portion of the nitrogenous dressing at the time of drilling, the remainder being given in the form of one or more top-dressings. Occasionally all the nitrogen may be applied with the seed, but this procedure is somewhat exceptional.

The total weight of nitrogen used will depend entirely upon the soil type, and upon the previous treatment of the land. It is quite impossible to lay down hard and fast rules applicable under all circumstances. Fen land containing large reserves of nitrogen will not answer to large doses of this nutrient in the form of manures. The same applies to mineral soils which have been exceedingly well done. It may safely be asserted that a total weight of nitrogen per acre in excess of that contained in 3 cwts. of sulphate of ammonia is likely to show returns only under very exceptional conditions. Much has been heard of the heavy dressings used on the Continent, but it would seem that the French and German grower is frequently working under entirely different conditions to those prevailing in this country, and often on soils much inferior to the general run of our own beet land.

It is generally agreed that the excessive use of nitrogenous manures is liable to react adversely on sugar content by undue prolongation of the growing period and consequent failure to ripen properly. Nitrogen indeed appears to be the only nutrient which is capable of producing any measurable effect on the quality of the roots. Externally, an excessive nitrogen supply is shown by the development of a large amount of dark green foliage which is not accompanied by a commensurate increase in the weight of root. There are indications that, under some circumstances, tonnage as well as sugar content may be reduced.

One and a half hundredweights sulphate of ammonia, or an equivalent of some other suitable nitrogenous fertiliser, will usually constitute the maximum dressing applied with the seed where top-dressing at a later stage is contemplated. Sulphate of



FIG. 1.

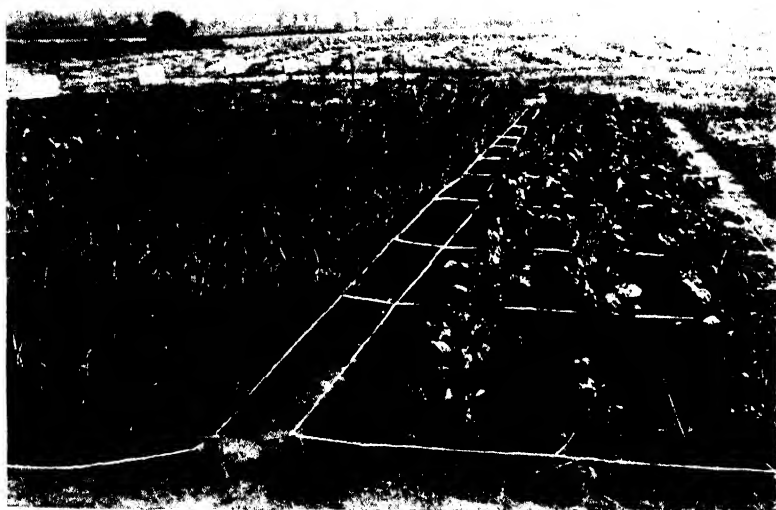


FIG. 2.

ammonia is probably the most effective and economical source of nitrogen for inclusion in the basal dressing, and is the only one which is suitable for admixture with other "artificial." Nitrate of soda and nitrate of lime are both entirely suitable manures, and, although rather more expensive than sulphate of ammonia, have the advantage of leaving alkaline residues in the soil. It has been suggested that nitrate of soda encourages a more deeply rooting habit and, in consequence, a more prolonged and slowly ripening growth. Such an effect must be regarded as undesirable, although it is unlikely that it will be produced to any such extent as to constitute a serious objection to the use of nitrate of soda on beet. Calcium cyanamide, an exceedingly cheap source of nitrogen, has never attained any great popularity in this country. The fact that it is rather slow in action, its alleged liability to damage germinating seeds, and certain other considerations have all served to prevent it finding a place among the commonly used nitrogenous manures. Several experiments are on record, the results of which tend to show that cyanamide is capable of giving good results on sugar beet. Ling³ found it to be the equal of sulphate of ammonia, and Ragondet⁴ quotes the results of experiments by Damseaux and Giel in Belgium, which show cyanamide to be superior to nitrate of soda. Provided that calcium cyanamide be applied two or three weeks prior to drilling there is little risk of damage to the young seedlings. The objections to the use of this manure on the grounds of the relatively slow rate at which its nitrogen becomes available, are not so easily disposed of. It has been very generally assumed that sugar beet absorb the greater proportion of their nitrogen during the first two or three months of the growing period, and hence require a quickly acting nitrogenous manure; the use of manures which exert a steady action throughout the whole of the vegetative period being supposed to delay maturity and result in a material reduction of sugar content. Opinion on this point is not unanimous, and the work of Garola in France and Gregoire in Belgium does not bear out the assumption of early nitrogen absorption. Whatever be the truth of this matter, it suffices that there are certain reasonably cheap nitrogenous manures which are known to give perfectly satisfactory results on beet under almost any conditions, while some doubt still exists as to the utility of calcium cyanamide. Further, it is an uncontrovertible fact that this material—the cheapest source of nitrogen on the market at the present time—has not found favour with the grower. The extent to which any particular fertiliser is used in farm practice surely constitutes the acid test of its usefulness.

It is too often assumed that top dressing is invariably essential for the production of a big beet crop, with the result that 1 or 2 cwts. of a soluble nitrogenous manure are blindly applied irrespective of the condition of the crop and the natural fertility and previous treatment of the land. The published results of recent experimental work certainly show that, in a majority of cases, the practice of top dressing has proved a profitable one even where reasonable weights of nitrogen have been applied previous to drilling. Nevertheless, it is a fact that on some land, and in some seasons, the nitrate of soda which is applied to the young crop might just as usefully be put straight into the drains. The writer can recall few instances in which top dressing proved economical on the best Lincolnshire silt land. To top-dress or not to top-dress is a question which must be answered for himself by each and every individual grower, and it must be answered only after full consideration of his own particular circumstances and in the light of his previous experience of the crop. It is, however, a fairly safe assumption that, on the majority of soils, a top-dressing of 1 or 2 cwts. of nitrate of soda or some other suitable fertiliser will usually pay, but that the practice will prove beneficial on the most fertile soils only when singling has been unduly delayed or when, for some other reason, the crop is in a backward condition. The application of large nitrogenous top dressings to a beet crop showing the characteristic effects of soil acidity, in the hope that such treatment may retrieve the situation, is futile.

Considerable attention appears to have been devoted by experimenters to the subject of top-dressing, and it may be worth while considering in some detail the results of a few field trials.

One particularly interesting experiment carried out at the Midland Agricultural College^s, with a view to determining the effects of increasing the quantity of nitrate of soda applied in the form of a single top-dressing after thinning, yielded the following results :—

Top-Dressing.		Yield of Sugar in cwts. per acre.	Percentage of Sugar.
1 cwt. nitrate of soda	..	31.47	16.2
2 " " "	..	35.21	16.7
2½ " " "	..	33.86	15.9
3 " " "	..	32.37	16.0
4 " " "	..	31.81	15.3
5 " " "	..	31.40 [†]	15.1

The amount of nitrogen applied prior to drilling is not stated. It is quite obvious from the above figures that, under the conditions of this experiment, 2 cwts. nitrate of soda constitutes the optimum top-dressing.

Experiments carried out by the University of Bristol³ in 1926 also demonstrate that a top-dressing of 2 cwts. nitrate of soda was an economical proposition when 1 cwt. sulphate of ammonia had been applied before seeding. The 2 cwt. dressings were here applied in two portions—1 cwt. at singling and 1 cwt. two or three weeks later.

The results obtained are summarised and tabulated below :—

Top-Dressing Nitrate of soda in cwts. per acre.	Yield in tons per acre.		
	Sandy soils. Averages of 4 centres.	Loams. Averages of 6 centres.	Clay soils. Averages of 3 centres.
Nil	15.8	13.4	15.6
1	15.3	14.7	17.5
2	17.8	15.4	18.2

The plots receiving 2 cwts. nitrate of soda failed to show a significant increase on the controls at only 2 centres. In four cases the 1 cwt. dressing yielded negative results. The effect of these top-dressings on sugar content was shown to be relatively unimportant, although there appeared to be some tendency for the first 1 cwt. nitrate of soda to produce an increase. The second 1 cwt. usually caused the sugar to revert to its original level. It is unfortunate that no attempt was made to study the effects of top-dressings larger than 2 cwts. nitrate of soda.

Evidence is not wanting to show that, under some conditions, a dressing of 1 or 1½ cwts. sulphate of ammonia before drilling will serve all the nitrogen requirements of the crop. Trials by the University of Leeds⁶ in 1925 and by the Cheshire School of Agriculture⁷ in 1926, failed to produce any evidence of the usefulness of top-dressing. As stated above, the individual grower must judge the needs of his own crop for additional nitrogen. If such is necessary then it should be remembered that any larger amount than that contained in 2 cwts. nitrate of soda is entirely unlikely to show any return. The use of nitrogenous top-dressings comparable in weight with those employed in Continental practice is not an economical proposition in this country.

In the foregoing remarks it has been assumed that the nitrogenous top-dressing will consist of nitrate of soda. This is the manure most commonly used, and it has proved satisfactory in the great majority of cases. There is, however, no reason why an equivalent weight of sulphate of ammonia or nitrate of lime should not replace it. The latter of these two possible substitutes is considered particularly useful upon land which is inclined to be sour. Sulphate of ammonia costs less per unit of nitrogen than any other manure of its class, has never been proved inferior to the nitrates as a top-dressing, and may be used with every confidence.

POTASH MANURES.

Potassium salts are generally understood to be essential for the proper functioning of the process of photosynthesis whereby the carbon assimilated by the leaves is elaborated into complex carbohydrate materials. Scientific men have long stressed the imperative need for potash manures in the culture of such starch and sugar producing crops as potatoes and mangolds, and their opinions are yearly borne out by the results of field experiments and the observations of practical farmers. The fact that sugar beet is, as its name implies, pre-eminently a sugar producing crop, warrants the assumption that it will prove responsive to potash. Further, the best English beet soils are light in character and of a type which when cropped with mangolds or potatoes responds generously to considerable dressings of potash salts, no matter whether or not dung is applied in addition to artificials. Nevertheless, an impartial survey of the evidence leads to the wholly unexpected conclusion that, on many of our soils, potash is not a limiting factor in the production of sugar beet and that when a moderate dressing of farmyard manure is used, the employment of potash salts may actually prove unremunerative.

A series of field experiments on the manuring of sugar beet were carried out in 1925 by the University of Leeds⁶ at six different centres. The plots at all centres received 12 tons of farmyard manure per acre, and the soils concerned appear to have been of types well suited to the cultivation of beet. At only two centres (Garforth and Womersley) has the total omission of potash from the standard dressing of artificials produced any significant decrease in yield. At three other centres the "no potash" plot actually yielded the larger tonnage. Estimations of sugar content were made at two centres and showed the potash dressing to have resulted

in an increase which is well within the limits of experimental error, and therefore of no import. Ling's experiments in the West of England showed a significant increase in tonnage for a dressing of $1\frac{1}{2}$ cwts. muriate of potash at five out of 15 centres. A double dressing of the potash salt proved effective in two cases only. The fact that four of the experiments were carried out on light, sandy soils, of which only one proved responsive to potash, emphasises the unexpectedness of the results. It should be added that these experiments entirely failed to demonstrate the alleged beneficial effect of potash on sugar content. Mangolds, and other potash loving crops, are known to benefit from dressings of common salt or salt-containing manures. Two factors may be concerned in this effect. Sodium is capable of partially replacing potassium as a plant nutrient, whilst chlorine, the other constituent of common salt, is said to increase the dry matter content of some root crops. The lower grade potash salts all contain the two elements under discussion, and muriate of potash constitutes an additional source of chlorine. It has been generally assumed that sugar beet, on account of their close relationship to mangolds, are likely to prove more responsive to the lower-grade potash manures than to the sulphate. The use of the former class of manure involves no additional expenditure, but need not be expected to produce any appreciable tonnage increases. There is, as yet, no evidence whatever to indicate that sodium and chlorine, in whatever combination they may exist, are capable of affecting the total yield or dry matter content of sugar beet. In addition to its beneficial effect on the dry matter of certain crops, chlorine is held to be capable of hastening the transfer of material from leaf to bulb or tuber, and thus shortening the vegetative period. Russell⁸ has pointed out that this effect on translocation may be of decided advantage where the vegetative period would be terminated in any case by climatic or other factors. Under some conditions growth may be brought to an untimely end before possible maximum production has been attained. The source from which the potash applied to the beet crop be derived would thus appear to be of little importance. Potash may be purchased most economically as the muriate, and this particular compound will serve as well as any other.

Although in some seasons the response to potash manures may prove disappointing, it should be remembered that this nutrient exerts a powerful influence on the health and vigour of all crops. The application of potash salts to tomatoes is an economical proposition when considered merely from the standpoint of the in-

creased immunity to "stripe" and other diseases which it confers upon the plants. Many other crops are known to be less susceptible to the ravages of fungus and bacterial diseases when they are adequately supplied with potash. Although sugar beet does not so far suffer from disease to the same degree as other field crops which have been longer established, it is to be expected that any large extension of the area under beet will, in due course, result in the disappearance of this comparative immunity which the crop now appears to enjoy. The application of reasonable weights of potash manures may, therefore, be regarded as a form of insurance against loss of vigour with the possible consequence of disease.

It is known that while potash may fail to produce any considerable response under normal weather conditions, it will often prove exceedingly useful in mitigating the effects of an unfavourable season. Here again, the inclusion of potash in the manurial mixture will serve to insure the farmer against a contingency which he is unable to foretell.

It is not the intention of the writer to suggest that the potash nutrient is an entirely negligible factor in beet culture, but merely to insist that undue importance has been attached to it, and that in a good many instances the soil is itself well able to provide a sufficiency without adventitious aid in the shape of artificial potash manures. The grower must give intelligent consideration to his soils and remember that a reasonable dressing of good farm-yard manure may quite obviate the necessity for spending money on potash salts. Sufficient evidence has been adduced to show that large dressings are quite unlikely to prove economical. Where dung is used, 1 cwt. muriate of potash, or an equivalent quantity of a lower grade potash salt, will usually prove adequate. Without dung, an additional $\frac{1}{2}$ cwt. of the muriate may be applied.

PHOSPHATES.

It has long been recognised that phosphatic manures are essential to the development of a vigorous root system. For this reason the utilisation of the phosphorus nutrient is at a maximum during the early stages of plant growth. Grégoire⁹ concludes from his studies of the absorption of phosphoric acid by sugar beet, that "The phosphoric acid of the manure only acts during a small fraction of the period of vegetation—about two months. For this reason it is imperative that the beet should receive its phosphatic manure in the most easily assimilable form." The same worker states, "It may be said that the utilization of the phosphoric acid

of the manure proceeds in inverse ratio to the development of the root system of the sugar beet."

The findings of Grégoire, concerning the absorption of phosphoric acid, and the necessity for employing it in some easily available form, if accepted, would appear to preclude the use of any phosphatic manure other than superphosphate. Basic slag is frequently suggested as a suitable source of phosphoric acid and Young¹⁰ states that "Good results can be looked for when finely ground North American Phosphate is used." It need only be said that, in those areas best adapted to the successful cultivation of sugar beet, these sparingly soluble manures have proved relatively ineffective on most root crops. Only under very exceptional conditions is it likely that more than 2 or 3 cwts. of superphosphate per acre will be applied, and the grower who turns over to a cheaper but less trustworthy source of phosphate for the sake of the very insignificant economy which the change effects, may find that he has adopted a penny wise and pound foolish policy.

If it be admitted that superphosphate is the most suitable manure for use under ordinary conditions, it remains to ascertain the maximum dressing which is likely to yield an economic return. It appears to have been very generally assumed, upon what grounds it would be difficult to say, that any manurial mixture suited to potatoes will do quite well enough for sugar beet. As a consequence, farmers are frequently recommended to apply superphosphate at the rate of 6 cwts. per acre, and then consoled with the information that, even though a larger dressing than necessary has been applied, no harm can be done as all phosphoric acid in excess of that required by the beet will be safely retained in the soil, and will come in for the next crop which happens to be in particular need of it. Recent work indicates that, on some soils, the immunity of phosphates from loss by leaching may be less complete than was once supposed. Apart from this consideration, it is probable that money can be more usefully employed than in purchasing superphosphate which is to be in the soil maybe three or four years before it has the opportunity of showing any financial return. The evidence goes to indicate that unnecessarily large dressings of superphosphate are commonly used on sugar beet, and that 2 cwts. per acre is probably nearer the economic limit than 4 or 6 cwts. Dowling¹ states that sugar beet does not respond to heavy dressings of phosphates, and Ling³, in the course of his experimental work, found that a reduction of the superphosphate dressing from 4 to 2 cwts. does not appear to have had any signi-

ficant effect. This latter writer concludes that "the inclusion of as much as 4 cwts. per acre of superphosphate in the basal dressing is not an economic proposition." This conclusion is in accord with that reached by the author after experience of the beet crop in South East Lincolnshire, where 4 cwts. per acre of superphosphate had the effect of depressing yield on some of the alluvial soils of that area.

SUMMARY.

The conclusions arrived at concerning the principal manurial requirements of sugar beet may be summarised as follows :—

- (1) Moderate dressings of farmyard manure, if applied during the autumn previous to sowing, are to be recommended. Organic manures other than farmyard manure are not in favour, and considerable doubt exists concerning their utility and economy when applied to sugar beet.
- (2) Soluble nitrogenous manures, if not used in excess, are capable of producing profitable tonnage increases without appreciable adverse effect on quality. The more slowly acting nitrogenous fertilisers are not suitable for immediate application.
- (3) There would appear to be evidence that relatively small dressings of potash manures suffice for the needs of the crop under most soil conditions, and that it matters little which of the ordinary potash salts be used. Undue importance has been attached to the rôle of potash in the nutrition of sugar beet.
- (4) While the presence of an adequate supply of phosphates is of importance, particularly during the earlier part of the growing period, and moderate dressings of a suitable phosphatic manure should invariably be employed, there has been a tendency to advise the use of unnecessarily large and uneconomic weights of such fertilisers. Superphosphate is to be preferred to other materials supplying phosphoric acid in less readily available forms.

MIXTURES OF ARTIFICIALS.

The inexperienced grower who does not contemplate the use of a ready-made compound manure, and feels that he requires guidance in the choice of a mixture of artificials adapted to his own

particular soil conditions, cannot do better than follow the recommendation of Ling³ or Dowling¹. The mixtures suggested by the former for use on light, medium and heavy soils, with and without dung, are as follows :—

	Light and Sandy Soils. Dung.		Medium and Loam Soils. Dung.		Heavy and Clay Soils. Dung.	
	With.	Without.	With.	Without.	With.	Without.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
Sulphate of Ammonia ..	1	1½	1	1	1	1
Superphosphate ..	3	4	2	3	2	3
Muriate or Sulphate of Potash	—	—	1	1½	0½	1
Kainit (14%)	5	5	—	—	—	—

N.B.—Top-Dressings are applied in addition to the basal dressings given in the Table.

The recommendations of Dowling are substantially in agreement with those of Ling, but exception must be taken to the mixture suggested as suitable for use on fen soils. The theory that phosphoric acid constitutes the primary need of these soils is no longer tenable, and 6 cwt. of superphosphate per acre is almost certainly a larger dressing than necessary on much of the English fen land. After recommending ½ to 1 cwt. muriate of potash per acre for this class of land, Dowling states, “It is quite possible there may be types of soil, *e.g.* clay loams and the rich fen soils, where small response will be obtained from dressings of potash, and it will be possible to reduce the quantity or eliminate altogether.” As a matter of fact many of the best fen soils, while they contain very large reserves of available phosphates and pay only for moderate dressings of superphosphate, respond freely to potash. The characteristic symptoms of potash starvation are easily induced on these soils.

COMPOUND BEET MANURES.

A large proportion of the artificial manure applied to sugar beet takes the form of ready-made compounds, said to have been specially designed with a view to the requirements of the crop. Rather than use such mixtures the grower may have a compound of his own design made up at the factory, or he may purchase the separate components and mix them himself. The first of these alternatives naturally involves some additional expense, whilst the latter is

troublesome where more than a few tons of material are to be handled. As a rule, the average grower prefers to buy the ready-made article, and it is highly desirable that the faith which he resposes in the manufacturer should be justified by the ability and readiness of the latter to sell him a sound mixture.

The more progressive manufacturers are now turning out compound manures greatly superior to their products of only four or five years ago, but it would be idle to deny that there is still much room for improvement. Year after year agricultural organisers and writers advise farmers as to the most suitable mixtures for the common farm crops, but the advice is only too frequently ignored because the farmer will have the ready-made article, and because many manufacturers do not shape that article so that it may meet the particular requirements of the crop for which it is said to have been designed.

The composition of many sugar beet, potato and other compound manures now on the market can only be justified on the assumption that the experts are hopelessly wrong in their estimation of the manurial requirements of the crops concerned. The kind of basal dressing usually recommended for sugar beet approximates to the following :—

2-3 cwts. Superphosphate,
1 cwt. Sulphate of Ammonia,
1 cwt. Muriate of Potash,

per acre.

Dung will, of course, be used in addition to a nitrogenous top-dressing if, or as required.

Now this typical mixture will, if $2\frac{1}{2}$ cwts. superphosphate be used, contain about 16.5% Soluble Phosphates, 4.4% Nitrogen and 11.0% Potash. The special beet compounds, whose constituents show a similar balance, are few in number.

There is always a tendency to cram these mixtures with phosphates, and to maintain the nitrogen and potash contents at as low a level as is consistent with decency. As a result, the grower who desires to give his crop the weights of nitrogen and potash recommended in this article finds himself obliged, whether he will or no, to apply 7 or 8 cwts. of superphosphate or its equivalent in the form of some other phosphatic manure. From the view point of the superphosphate manufacturer this may be excellent business ; as far as the grower is concerned it is sheer waste of money. It is, however, not usual to apply 11 or 12 cwts. of a prepared compound

—6 or 7 cwts. is an average dressing—so that the crop goes short of nitrogen and potash. Apart from the question of percentage composition, the constituents of these compound manures are not always what they might be. In this connection one may instance the use of bones as a source of phosphoric acid despite the almost unanimous opinion of agricultural investigators that this nutrient should be applied to sugar beet in the water-soluble condition.

It may be concluded, with little fear of contradiction, that the average compound beet manure is not capable of satisfying the known needs of the crop, and is not calculated to produce the best results. The grower who desires to apply a properly balanced mixture will usually be obliged to make it up himself, or have it made to order. The former procedure is frequently impracticable, while most reputable manufacturers are prepared to turn out compounds made up in accordance with the wishes of their customers.

CONTINENTAL PRACTICE.

The writer is indebted to Dr. Oskar Rabbethge, of the famous Klein Wanzleben concern, for an authoritative statement on the manuring of sugar beet in Germany.

Rabbethge strongly recommends the use of farmyard manure on all occasions, and states that "Sugar beet should, wherever possible, be fertilised with stable manure, applying 150-250 cwts. per acre. It is not advisable to use higher quantities than 250 cwts. per acre." Green manures are also approved, though stated to be less effective than farmyard manure.

That very large dressings of nitrogenous fertilisers are employed is indicated by the following extract from the statement:—"The quantity of artificial nitrogen fertiliser is dependent on the stable manure or green manure applied. The nitrogen requirements of the sugar beet are covered to a great extent by the stable manure and green manure. With stable manure 3-5 cwts. of Chilian Nitrate, without stable manure 5-7 cwts. of Chilian Nitrate per acre are applied." It is considered good policy to apply the whole of this very considerable dressing prior to drilling.

The dressings of phosphatic manures recommended, do not differ to any extent from those in use here, but great importance is attached to the presence of an adequate supply of potash, and relatively large quantities of potash salts are applied.

The following complete dressings are given by Rabbethge as typical of those used by German growers :—

(1) With farmyard manure.

1½–2½ cwts. Muriate of Potash.

1½–2½ cwts. Superphosphate.

3½–5 cwts. Nitrate of Soda or Sulphate of Ammonia.

(2) Without farmyard manure.

3 cwts. Muriate of Potash.

3 cwts. Superphosphates.

2½–3½ cwts. Sulphate of Ammonia.

1½–2½ cwts. Nitrate of Soda.

On the lighter soils the muriate of potash should be replaced by an equivalent weight of kainit, and basic slag may be substituted for superphosphate.

M. Albert Bruno, formerly Inspector General of Experimental Stations, recommends the following dressing as being one well suited to beet under French conditions :—

20 tons Farmyard Manure.

3 cwts. Basic Slag (16–18%).

6–7 cwts. Potash Salts (“Sylvinite riche”).

(to be applied during the autumn previous to drilling).

2½ cwts. Superphosphate.

¾ cwt. Sulphate of Ammonia.

¾ cwt. Nitrate of Soda.

(to be applied in spring before drilling).

In addition to the above manures, 1–1½ cwts. nitrate of soda is to be used as a top-dressing.

Referring to this dressing, Bruno states :—“ L’usage d’une telle fumure est un peu compliqué, mais ceux qui s’y appliqueront seront payés de leur peine. Les scories apportent gratuitement la chaux ; le superphosphate le phosphore, et le sulphate d’ammoniaque le soufre ; le sulphate d’ammoniaque prolonge, en outre, l’action du nitrate de soude. L’application des engrais azotés en deux fois, en terre et en couverture, assure une meilleure répartition de l’azote.”

The above mixture, although somewhat elaborate, does not differ markedly, as regards the nitrogen and potash contents, from the dressings commonly used in this country. As in Germany, great emphasis is laid on the necessity of an ample potash supply.

REFERENCES.

- (1) Dowling, R. N. (1926). Sugar Beet from Field to Factory (Benn).
- (2) Rose, T. H. (1927). An Investigation of the Effect of Soil Acidity and Alkalinity on the growth of Farm Crops at Houghall Farm. Durham County Council Education Department Report.
- (3) Ling, A. W. and Smith-Charley, V. L. (1926). Sugar Beet Trials. *University of Bristol Bulletin* No. 1.
- (4) Ragondet, G. (1926). *The Fertiliser, Feeding-Stuffs and Farm Supplies Journal.* May 19th.
- (5) Guide to Experiments and Demonstrations (1927). *Midland Agricultural College Bulletin* No. 13.
- (6) Seton, R. S. (1925). *University of Leeds Bulletin* No. 145.
- (7) Summary of Results of Field Experiments (1926). Cheshire School of Agriculture Report.
- (8) Russell, E. J. (1927). Soil Conditions and Plant Growth. (Longmans, Green and Co.).
- (9) Grégoire, M. (1903). *Bulletin de l'Agriculture* (Belgian.)
- (10) Young, T. (1927). *Fife Sugar Beet Club Magazine.*

VIII.—THE IMPROVEMENT OF POOR PASTURES, WITH SPECIAL REFERENCE TO THE MANURING OF ACID PASTURES.

A. W. Ling and T. Wallace.

Previous reports relating to the experiments discussed in the present paper have appeared in three numbers of the Society's Journal, viz. Fifth Series, Vol. XIX, Vol. XX; Sixth Series, Vol. XI. The two former of these articles have been chiefly in the nature of progress reports on the field work and on the results obtained up to the times of the writing of the reports, whilst the third dealt in particular with the action of the manures applied at four centres on the soils and herbage at those centres.

In the progress reports, whilst the actions of the various phosphatic and lime dressings under test were recorded, conclusions relating to these and to the various soil data obtained were not attempted since it was felt that it was necessary to continue the experiments over a longer period before reliable conclusions could be drawn.

The experiments have now been in operation over four growing seasons, and although further developments of interest are likely to take place from certain of the treatments, it appears that the

experiments have now provided the major portion of the answer to the immediate problem which they were initiated to solve and hence it is felt that the results should be recorded at the present stage in a final report. The only point which requires further study for the present purpose is the future action of lime on the plots since the maximum effects of the dressings have doubtless not been attained. It will be pointed out later, however, that the action of this material is of secondary importance to the action of phosphatic manures in the initial treatment of the types of pasture under discussion.

Perhaps the most interesting development since the issue of the last progress report has been the improvement which has resulted from the lime treatment at most of the centres. Practically no result was obtained from this treatment during the first two seasons and only very little during the third, but at three centres during the fourth season marked responses have been recorded, while at certain other centres smaller responses have become noticeable.

Relatively little change has taken place on the majority of the phosphate plots during this same period, though the good results have been further developed in certain cases, especially on the plots treated with mineral phosphate and superphosphate plus lime.

The soil work not previously reported for two centres has been completed and is included.

The more important conclusions which may be drawn from the experiments relative to the action of phosphatic manures and lime on poor pastures occurring on acid soils in the area considered are set out in the present report. It will be seen from these that the most important from the practical viewpoint is that marked improvement in such cases will usually be effected by dressings of high-grade basic slag or finely ground North African phosphate used alone at ordinary rates for grassland. Further improvement will frequently be obtained by the addition of lime to the above phosphatic dressings. Superphosphate is erratic in action and is often without perceptible effect when not used in conjunction with lime. Although dressings of lime will often produce beneficial effects, basic slag and North African phosphate are to be recommended in preference to this material in the initial stages of improvement owing to their comparatively quick action and the relative cheapness of the treatments.

SOIL DATA.

In the first report on these experiments a list of the centres selected was given together with soil data from 9 of the 11 centres. Since then the analytical work has been completed for the remaining 2 centres and results on the samples from these are given in Table I.

TABLE I.—SOIL DATA.

Mechanical Analysis.

Centres.	Stones. %	Fine Gravel. %	Coarse Sand. %	Fine Sand. %	Silt. %	Fine Silt. %	Clay. %
<i>Pencombe, Hereford.</i>							
Surface	nil	0.30	0.44	45.88	16.50	16.60	11.65
Subsoil	nil	0.15	0.44	47.65	18.85	14.80	11.50
<i>Rodhuish, Somerset.</i>							
Surface	nil	8.78	8.05	22.14	23.60	23.30	4.60

Chemical Analysis.

Centres.	Loss on Ignition (moisture + organic matter). %	Available		Lime Require- ment. %
		Phosphoric P_2O_5 %	Potash. K_2O %	
<i>Pencombe, Hereford.</i>				
Surface ..	8.18	0.003	0.015	0.53
Subsoil ..	6.04	0.004	0.012	0.31
<i>Rodhuish, Somerset.</i>				
Surface ..	10.13	0.005	0.011	0.60

It will be noted that the soils from both centres are strongly acid. The Pencombe soil is fairly light, containing nearly 50% fine sand, whilst that at Rodhuish is a close-textured silty soil containing only a small percentage of clay.

PROGRESS REPORTS ON CENTRES, 1926-27.

Malmesbury, Wilts. No. 1.

This centre was visited on April 30th, 1926, and on June 29th, 1927.

April 30th, 1926.

No change was noticed in the herbage except that on the limed areas the mosses and lichens had died out and the weeds, chiefly mouse-eared hawkbit, were much greener than on the rest of the field. The lime dressing was still visible on the surface.

June 29th, 1927.

No apparent results from the dressings of phosphatic manures were observed, but the limed halves of all plots appeared much greener than the rest of the field. The area receiving lime was slightly better grazed and contained less moss and lichen. Gorse has spread rapidly over the whole area, and the opinion was formed that the field would require to be ploughed up and re-seeded before a useful turf would be formed.

Malmesbury, Wilts. No. 2.

This series of plots was visited on the same dates as Malmesbury, Wilts, No. 1.

April 30th, 1926.

Reference to the 1925 report will show that previous to that season these plots had been ungrazed and were covered with a dense mat of coarse unpalatable grass. For this reason the mowing machine was run over the plots during the summer of 1925, and this had a pronounced effect on the appearance of the herbage. At the time of the visit the plot receiving mineral phosphate contained a fair growth of clover, and its condition was markedly superior to those of the other plots.

A slight improvement was noticed on the other phosphate plots. The whole of the section receiving lime was much greener than the unlimed area, and the dividing line was well marked by this difference in colour, but it did not appear that the lime had encouraged the growth of clover nor led to appreciable differences in grazing at this time.

June 12th, 1926.

This centre was again visited, with the Agricultural Organiser for Wiltshire, on June 12th, 1926, when an area alongside the original plots was treated with 4 cwts. of nitrate of soda per acre with the object of attempting to encourage a luxuriant top growth of grass and to cut this down in the autumn and apply a phosphatic dressing. The nitrate of soda, however, had no visible effect on

the herbage, and in view of this the proposed phosphatic dressing was not given.

June 29th, 1927.

The plots were cut for a second time with the mowing machine during 1926. The ground mineral phosphate plot was again the best of the series, in fact it had improved immensely since the last visit. It had been closely grazed and contained a high percentage of clover. The slag and superphosphate plots had improved quite appreciably, the latter plot being the better of the two. The effect of the lime was very marked. Lime alone had encouraged grazing and the plots were much greener than the unlimed plots, but the best results were obtained where lime had been used in conjunction with the phosphates. The area receiving lime and ground mineral phosphate provided a striking contrast to the rest of the field. This plot was much superior to the others. It contained much clover, was well grazed and a healthy green in colour. The superphosphate plus lime plot was next best in order, with the slag plus lime area some way behind. The unmanured controls were rough, ungrazed and unhealthy in colour.

No result was observable on the nitrate of soda section.

Pewsey, Wilts.

This centre was visited twice in 1926 and once in 1927, as under :

April 29th, 1926.

All the phosphate plots were much better than the controls. The initial improvement obtained with slag had been continued, and this plot was the best of the series. On it the grazing had been good and the herbage contained much clover. Very little response to lime could be observed, except where it had been used in conjunction with superphosphate. This plot was nearly as good as the slag alone plot.

The whole of the field showed signs of being understocked and there were many ungrazed patches present.

October 26th, 1926.

During the period April to October 1926, the field on which the plots are situated had been rented to a tenant farmer who only wished to graze a few heifers. These has access to a large area, with the result that the actual plots were seldom grazed. For this reason the plots contained many rough ungrazed patches and showed

signs of reversion to their original poor condition. The improvement on the slag plot was still noticeable and the grazing was better there than on the remainder of the area, but the clovers did not seem to be so vigorous as at the time of the last visit. The other phosphate plots were still ahead of the controls and the ground mineral phosphate plot was better than the superphosphate area. The effect of lime where used with superphosphate on the colour of the herbage and its encouragement of grazing was still apparent. The slag and ground mineral phosphate plots were better than the plots receiving these manures plus lime, whereas the reverse was true in the case of the superphosphate plots.

August 22nd, 1927.

It was again evident on the occasion of this visit that grazing over the whole field had been quite inadequate to cope with the amount of herbage produced. The slag plot appeared to be deteriorating considerably and the ground mineral phosphate plot had improved somewhat so that the herbage of these two plots appeared to be similar in quality. They contained plenty of clover, but were somewhat patchy in appearance. The superphosphate plot contained a fair amount of clover, but was almost ungrazed. Lime was showing a more marked improvement than any phosphate alone and the limed area was better grazed than any other part of the field. Where the lime crossed the phosphate plots an excellent growth of clover was observed. These plots were a healthy green colour and the areas better grazed than elsewhere. The unmanured control plots were badly grazed and bronzed in colour. There appeared to be a fair proportion of clover present in them, but this was poorly developed.

Backwell, Somerset.

The substantial improvement reported at this centre in 1924 and 1925 was maintained during 1926 and 1927. During the latter two seasons the plots were visited on three occasions.

April 27th, 1926.

The whole of the area receiving superphosphate presented a striking appearance, the herbage consisting of a very short growth of beautifully green clover. This area had been very closely grazed. The part of the superphosphate plot which had been cross-dressed with lime was probably slightly better than that treated with superphosphate alone. The slag plus lime plot was as good as the superphosphate alone plot. Ground mineral phosphate alone

and slag plus lime had produced excellent results and the plots had been well grazed. The limed area of the ground mineral phosphate plot was very much inferior as regards grazing and clover development to the unlimed section. Slag alone and ground mineral phosphate plus lime had produced similar results, both being much ahead of the controls, which were rough, ungrazed and almost devoid of clover, but they were definitely inferior to the superphosphate plot. Lime appeared to have had some effect as the grazing was much better on such areas, but it had not encouraged the growth of clover to any appreciable extent. The whole field had been very closely grazed.

November 9th, 1926.

The relative condition of the plots at the time of this visit was the same as on April 27th, 1926, except that the whole of the limed area appeared to be improving particularly as regards clover development.

July 11th, 1927.

All the phosphate plots stood out markedly from the controls. The plots receiving phosphate had been closely grazed and contained plenty of clover. No difference could be observed between the phosphates alone and the phosphates plus lime plots; nor was there any observable difference between the lime alone and the unmanured plots. Grazing had been very intense over the whole field.

Bridgtown, Somerset.

This centre was visited once in 1926 and again in 1927.

November 11th, 1926.

In the two previous reports on visits to this centre it has been recorded that the improvement on the plots was only slight and also that the effects of a previous "slagging" of the field were believed to be somewhat masking the results. Any such effects were not prominent enough to mask the effects of the various treatments in 1926 when all the phosphate plots showed very marked improvement over the controls, which were rough, ungrazed and bronzed in colour, whereas the plots receiving slag, ground mineral phosphate and superphosphate were bright green, well grazed and contained an abundance of clover. Of the phosphate plots, probably slag was the best, but all were producing excellent results. Lime also appeared to be having a good effect as the

area receiving this material was much greener, better grazed and contained more clover than the unlimed section, but the "lime alone" areas were very much inferior to the phosphate alone plots.

July 12th, 1927.

The good results from dressings of phosphatic manures noted in 1926 were again clearly discernible on the occasion of this visit. The phosphate plots contained an excellent covering of clover, were a healthy green colour and had been well grazed. The result produced from slag alone was excellent, that from mineral phosphate with and without lime and slag with lime very good, whilst good results were showing on the whole of the superphosphate area. Lime had only produced a very slight effect. On this area there had been some clover development, but the plots had not been so well grazed as the phosphate plots which stood out in marked contrast to them. The herbage on the unmanured controls was moderately good, but the grazing over these sections had been poor.

Shepton Mallet, Somerset.

The plots at this centre were visited twice in 1926 and once in 1927.

May 28th, 1926.

The excellent results reported in 1924 and 1925 on the phosphate plots were again evident in May 1926. These plots had been grazed very closely. They were an excellent green in colour and contained much wild white clover. It was difficult to give priority to any one of the phosphate plots, but probably the plot receiving superphosphate was slightly better grazed than the others. No effect from lime could be observed when the limed area was compared with the sections receiving no lime and no phosphatic manure. These unmanured areas were rough, ungrazed, bronzed in colour and very weedy (scabious, etc.). The sections of the phosphatic manure plots receiving lime were inferior to the sections receiving no lime; in fact, it appeared as though the lime was exerting a deleterious effect on the action of the phosphatic manures.

November 9th, 1926.

The observations were similar to those recorded on the previous occasion.

July 11th, 1927.

During 1927 the field in which the plots are located was put up

for hay and at the time of the visit the hay was just ready for cutting, and this did not allow of a close comparison of the plots being made. Over the whole of the area outside the plots the hay crop appeared to be very slight, thin in the "bottom" and weedy. Much fog grass was present. The hay crop appeared to be much increased on the slag and mineral phosphate plots and the limed halves of the plots looked as though they would give much heavier crops than the unlimed. The hay on the superphosphate plot was much thinner than on the other phosphate plots and instead of fog grass predominating, crested dog's tail was in much greater evidence. It was thought that this condition was due to the previous harder grazing which had taken place on this plot as compared with the other phosphate plots.

The lime alone sections of the unmanured controls appeared to contain a slightly heavier crop than the unmanured portions.

Clover was much in evidence on all the phosphate plots, particularly on the plot receiving superphosphate. There was no appreciable clover development on the limed and unlimed sections of the controls.

Woolaston, Gloucestershire.

Three visits were made to this centre during the years 1926-1927.

May 6th, 1926.

The significant improvement previously reported from basic slag was still very marked at the time of the visit. The slag plot was covered with a thick growth of clover, was well grazed except for an occasional rough patch, and very healthy in colour. The limed half of the plot was not quite so good as the unlimed. On the ground mineral phosphate plot, the colour development was good, but the grazing had not been so close as on the slag plot. The limed half of the mineral phosphate plot was much poorer than the unlimed half both as regards clover development and grazing. Some improvements were noted in the superphosphate plot where this fertiliser had been used in conjunction with lime, but the fertiliser used alone had effected practically no improvement in the herbage over that of the unmanured controls where the grass was rough, unhealthy in colour and ungrazed. Lime alone had produced a greener colour in the herbage and slightly less mat, but it did not appear as though it had encouraged clover development or grazing.

October 29th, 1926.

The slag alone plot was still the best one of the series, but it was not quite so good as at the time of the previous visit. The improvement brought about by slag plus lime and mineral phosphate alone was still well marked, but these plots were definitely inferior to the slag alone plot. Mineral phosphate and lime had brought about a slight improvement as regards clover development, but no improvement could be noticed on the superphosphate alone plot, which was in a similar condition to the controls, being rough, ungrazed, almost devoid of clover and unhealthy in colour. Lime was generally showing a marked improvement, the whole strip being much greener in colour and showing signs of having been better grazed. It was difficult, however, to observe any great improvement in the quality of the herbage due to it. There were indications that the field was badly in need of heavier stocking.

June 23rd, 1927.

At the time of this visit the slag plus lime plot was definitely better than the slag alone plot. These two plots together with the superphosphate plus lime plot were all excellent. A larger percentage of the ground on all these plots was covered with clover. They were a very healthy green in colour and were well grazed. The clover plants appeared to be particularly vigorous. Ground mineral phosphate alone and this fertiliser with lime had also produced good results. The plots were well grazed and contained large patches of clover, but a fair proportion of the ground was not much improved. On the superphosphate alone plot only small areas had been grazed and there were only very small clover patches. The unmanured plots were practically ungrazed and contained much dead grass from previous years.

The response to lime noticed at the time of the previous visit was still showing, the limed area appearing greener and somewhat better grazed than the unlimed area.

The plot adjoining the series which was dressed in the spring of 1924 with ground limestone showed a fair response to the treatment, the improvement due to it being similar to that produced by the quick lime dressing.

Frampton Cotterell, Gloucestershire.

This centre was visited once in 1926 and once in 1927.

May 9th, 1926.

Reference to previous reports on this centre will show that no outstanding developments had been noticed hitherto at this centre, and at the time of this visit no one plot was markedly superior. Generally speaking the plots receiving the various forms of phosphatic manure were greener and more forward than the rest of the field. There was no visible effect from lime. The slag plot contained considerably more clover than the other plots; also, it had been slightly better grazed. The other phosphate plots did not show any appreciable improvement over the controls. The whole field had been heavily stocked.

June 27th, 1927.

The field was put up for hay in 1927 and on the occasion of the visit the area outside the plots was producing a very poor crop. The herbage was thin in the bottom and almost devoid of clover. All the plots receiving phosphatic manures showed a marked improvement over the rest of the field, especially on the limed halves which were decidedly superior to the unlimed, there being fair clover development and a thick bottom growth of grasses. No significant differences could be detected between the various phosphate plots. Lime alone showed considerable improvement, but the clover was not so prominent as on the phosphatic plots. The unmanured plots were devoid of clover and the bottom was poor and thin, the growth on these areas being generally similar to that on the area outside of the plots.

Acton Beauchamp, Hereford.

This centre was visited once in 1926 and once in 1927.

October 3rd, 1926.

Since the visit on September 7th, 1925, the plots had been grazed with the result that there was not so much "top grass" in evidence, although the field still showed signs of inadequate stocking. The improvement brought about by slag and reported upon previously was still much in evidence. Both the slag alone and slag plus lime plots were in excellent condition, containing an abundance of clover and being well grazed except for a few ungrazed patches. The plots receiving superphosphate plus lime and ground mineral phosphate plus lime were nearly as good as the slag plots, but grazing had not been quite so close on these plots and possibly the clover development was not quite so good. A slight improvement appeared to have taken place on the ground mineral phosphate

alone plot, but there were large ungrazed patches present on this plot. Very little difference could be noticed between the superphosphate alone plot and the controls which were rough and ungrazed but contained some areas of clover. Lime had induced better grazing, but no definite increase in the clover growth could be traced. In one of the previous reports it was mentioned that the top end of the field had been slagged in 1924. The effect of this slagging was very marked on this occasion.

June 23rd, 1927.

The field after having been heavily grazed during the early part of 1927 had been put up for hay rather late so that at the time of the visit it was difficult to assess the improvement on the various plots, particularly as the pegs marking out the various plots had been removed. The limed area was superior to the unlimed section. In the former of these areas there was a very thick herbage growth containing a luxuriant development of clover. The effect of the lime was more pronounced where it had been used in conjunction with the phosphates. Probably the slag plus lime and superphosphate plus lime plots were better than the mineral phosphate plus lime plot. The phosphates alone had all produced definite responses as regards clover growth. Improvement from lime alone was possibly somewhat less than from the various phosphates alone.

Rodhuish, Somerset.

Two visits were paid to this centre since the last report.

November 8th, 1926.

All the plots receiving phosphatic manures were showing some improvement over the controls. These treated plots had been much better grazed and certainly contained more clover. They were a better colour than the controls. Unfortunately the direction of mowing had been reversed at the junction of the lime and no lime sections making one side appear somewhat greener than the other, but lime was definitely showing some improvement in the grazing and colour of the herbage of the phosphatic plots. Ground mineral phosphate had probably produced the best result although definite responses to superphosphate and slag were noticeable. It should be mentioned that the end of the field on which the ground mineral phosphate plot is situated has always been considered better than the rest of the field. In the 1925-1926

report on this centre it was stated that of the additional plots at this centre the one receiving steamed bone flour was best of the series. This improvement brought about by this material had been maintained. No improvement could be noticed from kainit when it had been used in conjunction with steamed bone flour or applied alone.

July 12th, 1927.

It was exceedingly difficult to place the phosphatic plots in order of merit on this occasion. All the fertilisers had produced visible effects, but these were only slight except on the area receiving ground mineral phosphate. On this plot the colour effect on the herbage was marked. The plot had been well grazed and there was a good development of clover and trefoil. The manured plots showed up clearly against those receiving no treatment, where the herbage was rough, ungrazed and bronzed in colour. Steamed bone flour used alone and with kainit had produced fair results, but kainit alone had produced very little response. It appeared as though lime had possibly improved the colour of the herbage but no effect from it could be observed on the grazing or composition of the herbage. Possibly the only fertilisers which had effected results of practical value were mineral phosphate and steamed bone flour.

Pencombe, Hereford.

Two visits were paid to this centre in 1926 and one in 1927.

May 8th, 1926.

Slag and slag plus lime had produced an excellent turf which had been well grazed and which contained a good growth of clover and fine grasses. Superphosphate plus lime had produced a result nearly as good as the above treatments, but this plot contained several ungrazed patches. Superphosphate alone had only produced a very slight response, whereas ground mineral phosphate had caused abundant growth of clover and had encouraged close grazing. The limed half of this plot was definitely inferior to the unlimed half. Lime alone had brought about very little change in the herbage composition or in the amount of grazing. The unmanured plots were very rough, ungrazed and bronzed in colour.

June 22nd, 1927.

The noticeable feature on this occasion was the improvement due

to lime treatment, particularly in conjunction with all three forms of phosphate. In particular, the superphosphate plus lime plot contrasted strongly with the plot receiving superphosphate alone. Although the lime alone plots were not so good as the various phosphate and lime plots, the herbage on the former was good, being an excellent green, containing much clover and being well grazed. The only plot of the phosphate series which was not in excellent condition was the superphosphate alone plot where the improvement was negligible. The controls were still covered with rough ungrazed herbage of poor colour.

DISCUSSION ON RESULTS (1924—1927).

It was pointed out in the first report on these experiments that they were initiated in order to discover the values of phosphatic manures alone and phosphatic manures in conjunction with lime, and of lime alone, for the purpose of improving pastures situated on acid soils of widely different types and occurring over an extensive area in the south-west of England. In view of these aims the results obtained are discussed below under the following headings :—

- (1) The effects of manures :
 - (a) Action of phosphates alone.
 - (b) Action of phosphates plus lime.
 - (c) Action of lime alone.
- (2) The effects of manures in relation to soil data :
 - (a) Texture.
 - (b) " Available " potash and phosphoric acid.
 - (c) Degree of acidity or " lime " requirement.

(1) *The Effects of Manures.*

Table II indicates the magnitudes of the effects produced by the various manurial treatments as judged by the colour of the herbage, the amount of clover development and the improvement in grazing at different times during the seasons 1924-1927.

TABLE II.
Summary of Results at Experimental Centres.

Centre.	Visits.	Phosphate only.			Phosphate plus lime.			Lime only.
		Slag.	Super-phosphate	Mineral phosphate	Slag.	Super-phosphate	Mineral phosphate	
Malmesbury(1)	1924 Autumn	nil	nil	nil	nil	nil	nil	nil
	1925 Spring	nil	nil	nil	nil	nil	nil	nil
	Autumn	nil	nil	nil	nil	nil	nil	nil
	1926 Spring	nil	nil	nil	Herbage s	Herbage s	lightly gre	ener
	1927 Summer	nil	nil	nil		lightly gre	ener and effect	slight
Malmesbury(2)	1924 Autumn	nil	nil	nil	nil	nil	nil	nil
	1925 Spring	nil	improvement	improvement	nil	nil	nil	nil
	Autumn	Slight	Slight	Fairly good	Herbage	Herbage	slightly gre	reener
	1926 Spring	Slight	Slight	Fairly good	Herbage	Herbage	slightly gre	reener
	Autumn	Slight	Slight	Fairly good	Fair	Fair	Very good	Fair
	1927 Summer	Slight	Fair	Good				
Pewsey	1924 Autumn	Good	Slight	Slight		Very slight	ght effect	
	1925 Spring	Good	Very slight	nil	Good	Fair	Fair	nil
	Autumn	Excellent	Very slight	nil	Good	Fair	Fair	nil
	1926 Spring	Good	Pract. nil	nil	Good	Good	Slight	nil
	Autumn	Fairly good	Slight	Fair	Fair	Fairly good	Slight	Slight
	1927 Summer	Fairly good	Slight	Fairly good	Excellent	Excellent	Excellent	Excel.
Backwell	1924 Spring	Slight	Good	nil	Slight	Good	nil	nil
	Autumn	Very good	Excellent	Slight	Very good	Excellent	Slight	nil
	1925 Autumn	Very good	Very good	Fair	Excellent	Excellent	nil	nil
	1926 Spring	Very good	Excellent	Excellent	Excellent	Excellent	Slight	Very slight
	Autumn	Very good	Excellent	Excellent	Excellent	Excellent	Fair	Fair
	1927 Summer	Very good	Very good	Very good	Very good	Very good	Very good	nil
Bridgtown	1924 Autumn	Slight	Slight	Slight	Slight	Slight	Slight	nil
	1925 Autumn	Slight	Slight	Slight	Slight	Slight	Slight	Slight
	1926 Autumn	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Slight
	1927 Summer	Excellent	Good	Very good	Very good	Very good	Very good	Very slight
SheptonMallet	1924 Autumn	Fair	Excellent	Fair	Fair	Excellent	Fair	nil
	1925 Autumn	Excellent	Excellent	Good	Excellent	Excellent	Fair	nil
	1926 Spring	Excellent	Excellent	Excellent	Good	Good	Fair	nil
	Autumn	Excellent	Excellent	Excellent	Good	Good	Fair	nil
	1927*Summer	Good	Good	Good	Good	Good	Good	Fair
Woolaston	1924 Autumn	Good	nil	Slight	Fair	Very slight	Very slight	nil
	1925 Autumn	Excellent	Fair	Good	Very good	nil	nil	nil
	1926 Spring	Excellent	nil	Good	Very good	Fair	Slight	Very slight
	Autumn	Very good	nil	Good	Very good	Fair	Slight	Fair
	1927 Summer	Very good	Pract. nil	Good	Excellent	Excellent	Good	Fair†
Frampton Cotterell	1924 Autumn	Slight	Fair	Slight	Slight	Fair	Slight	nil
	1925 Autumn	Fair	Slight	Fair	Fair	Slight	Fair	nil
	1926 Autumn	Fair	Slight	Slight	Fair	Slight	Slight	nil
	1927*Summer	Fair	Fair	Fair	Good	Good	Good	Fair

TABLE II.—*continued.*

Centre.	Visits.	Phosphate only.			Phosphate plus lime.			Lime only.
		Slag.	Super-phosphate	Mineral phosphate	Slag.	Super-phosphate	Mineral phosphate	
Acton Beauchamp	1924 Autumn	Good	Fair	Fair	Fair	Good	Fair	nil
	1925 Autumn	Excellent	Very good	Good	Excellent	Very good	Good	Fair
	1926 Autumn	Excellent	nil	Slight	Excellent	Very good	Very good	Slight
	1927* Summer	Good	Good	Good	Excellent	Excellent	Good	Good
Rodhuish	1925† Autumn	Slight	Slight	Slight	Slight	Slight	Vert slight	nil
	1926 Autumn	Very fair	Good	Very fair	Very fair	Very fair	Good	Very slight
	1927 Summer	Very slight	Very slight	Good	Very slight	Very slight	Good	Very slight
Pencombe	1925† Autumn	Excellent	nil	Good	Good	Good	nil	nil
	1926 Spring	Excellent	Very slight	Very good	Excellent	Very good	Fair	nil
	Autumn	Excellent	nil	Excellent	Excellent	Very good	Excellent	Fair
	1927 Summer	Excellent	nil	Excellent	Excellent	Excellent	Excellent	Fairly good

* Field up for hay at time of visit.

† Manures applied winter 1924-25.

‡ "Fair" result also from ground limestone this date.

(a) The Action of Phosphates alone.

Examination of the results presented in Table II shows that with one exception—Malmesbury No. 1—the herbage at all centres has responded to a marked extent to applications of phosphatic manures.

Basic Slag. Some measure of improvement in the herbage was effected by basic slag at all centres with the exception of Malmesbury No. 1, where no treatment has proved beneficial. At seven of the 11 centres the improvement has been very marked, the herbage being changed from poor rough unpalatable material into a highly nutritious grass and clover mixture which stock have grazed very bare. It should be noted that where improvement has followed from any of the phosphate treatments that a luxuriant growth of wild white clover has been invariably obtained, thus showing that this plant is fairly tolerant to soil acidity and that the type of improvement obtained from phosphatic manures on these acid soils is similar to the well-known results of Somerville, Gilchrist and others on soils containing carbonate of lime or of a less acid nature than those considered in these experiments.

At three centres the response to slag, although visible in the colour of the herbage and to a slight extent in clover development and closer grazing, was only moderate and in two of these cases was possibly not sufficient to cover the cost of the treatment.

At these two latter centres perhaps better results could have been obtained had more attention been given to clearing the rough herbage and "mat" which existed previous to the treatment, but this was not done in the early stages of the experiments, since information was primarily desired in relation to the improvement of herbage on rough bracken patches where it is not always possible to give much attention to such points of management.

The centre at which slag did not produce any effect is doubtless a very exceptional one since it does not even carry a grass herbage. That the soil type is responsive to phosphates is shown by the results obtained at Malmesbury No. 2.

Superphosphate. Perhaps the most outstanding feature of the action of superphosphate has been the erratic nature of the results produced. At two centres it produced effects superior to basic slag and these effects were showing in a remarkable fashion within a few months of the application of the dressing. At other centres the improvement effected by it has been negligible over the whole period and in certain cases the effects have only been of a moderate order. One can only conclude from the results that it cannot be regarded as a reliable fertiliser for cases such as those examined. Where the manure has given a marked response the effect has persisted over the four seasons. One point of interest was noted on the plots showing response to superphosphate. This was that in such cases there was a marked increase in the development of wild red clover in addition to the wild white variety, which was not the case on the other phosphate treated plots.

The application of the fertiliser was generally followed by a slight "burning" effect on the herbage, but this condition soon disappeared in all cases.

Ground Mineral Phosphate. The ultimate results produced by this fertiliser were similar to those effected by basic slag. Excellent to good results were produced at nine centres, a moderate result was obtained at another, whilst no visible result could be observed in the remaining case.

The difference between the action of this manure and slag has been chiefly one of time. Slag has usually effected improvement more quickly than ground mineral phosphate since at four centres where good results were eventually obtained from the use of the latter, large effects were not apparent until two years after the application of the dressings. In connection with this rate of action it should be pointed out that there are now on the market more

finely ground samples of this mineral phosphate than that used in the experiments, and it is possible that this finer grade material may be quicker in action. The results suggest that this fertiliser is very reliable for improving the types of grassland under consideration and in view of its relative cheapness and its high phosphate content it should prove a valuable material for use in the improvement of poor acid hill pastures in the area.

(b) *Phosphates plus lime.*

As indicated in the first two progress reports, lime in conjunction with the various phosphates did not produce any striking results during the first two seasons and indeed in certain cases plots receiving phosphates alone were definitely superior to those receiving phosphates and lime. From observations made during 1926 and 1927 it appears that lime has commenced to exert beneficial effects at certain of the centres and especially in conjunction with superphosphate. Thus at five centres—Pewsey, Woolaston, Frampton Cotterell, Pencombe and Acton Beauchamp—in 1927 the limed portions of the phosphate plots were definitely superior to the corresponding unlimed areas. At Pewsey, Woolaston and Frampton Cotterell the results on the superphosphate plots are very striking since in these cases superphosphate alone has produced negligible effects.

(c) *Action of Lime alone.*

Until the middle of 1926, i.e., nearly 2½ years after the commencement of the experiments, no observable response was obtained from the applications of lime at any of the centres except Acton Beauchamp. In one or two cases it was noticed that the herbage on the limed plots appeared somewhat greener than on the unlimed controls, but no improvement could be detected in the amount of clover and fine grasses or in the intensity of grazing. During the spring of 1926 it was observed that lime was having a very slight effect at eight of the centres, and by the autumn of that year the improvement was somewhat more marked. By the summer of 1927, there were good responses to lime at three centres, fair responses at four centres and slight responses at two centres. In considering these results it should be noted that where they have been obtained, equally good and usually much better results have been obtained with some form of phosphatic manure at the same centre and at a much earlier date. Before the value of lime in such cases can be fairly judged, it will be necessary to follow the duration of the effects of the dressings but, from the results already

to hand, it would appear that for purposes of the initial treatment of these poor pastures, dressings of suitable phosphatic manures will prove more useful than dressings of lime as relatively quick action is usually desired.

(2) *The Action of the Manures in relation to Soil Characters.*

Soil data relating to texture, "available" potash and phosphoric acid and acidity or "lime requirement" at nine of the centres were presented and discussed in the first report on the experiments, whilst similar data for the two remaining centres are given in the present report.

It will be useful to examine the results obtained from the treatments over the four seasons in relation to these data in order to determine whether good and bad results are associated with any particular soil factors.

(a) *Texture.*

In selecting the centres an attempt was made to secure areas showing a good range of texture since this factor is generally held to be of importance in determining the rate of action of various types of phosphatic manures.

From the data obtained it is possible to group the soils into three categories on the basis of texture, viz. :—

Open textured, sandy soils. Pewsey, Woolaston, Acton Beauchamp.

Medium loams. Bridgtown, Shepton Mallet, Frampton Cotterell, Pencombe, Rodhuish.

Heavy clay soils. Malmesbury No. 1, Malmesbury No. 2, Backwell.

In order to trace any relationships between texture and the action of the various manures, it will be convenient to examine the effects of each of the manures separately. When this is done in the case of slag, it is seen that good results were obtained at seven centres, at three of which the soil is light, three medium and one heavy ; moderate results were obtained at one centre with medium soil and two poor and no result at three centres where two soils were heavy clays and one soil was of medium texture. It appears, therefore, that there is little relationship between texture and the action of slag in these cases. It is of interest to note the excellent

result obtained at Pewsey, where the soil is extremely light, containing approximately 78% sand and less than 1% clay in the surface soil.

Superphosphate alone produced good results at four centres, medium effects at two, and very poor or negligible results at five centres. Here again the action of the manure does not show any relation to soil texture. Of the four good results one is on a heavy soil, two on medium loams and at one centre the soil is light; one medium result was obtained on a medium soil, and one where the soil is a heavy clay; of the five poor results two were on light soils, two on medium and one on a heavy clay.

In the case of the mineral phosphate the results were similar to those obtained with basic slag excepting that this fertiliser produced good results at Rodhuish and Malmesbury (2), in which cases the results from slag were poor. It has been pointed out, however, that in these cases the conditions under which mineral phosphate was acting appeared to be more favourable than those on the slagged areas.

While it is probably premature to consider the ultimate effect of the lime dressings it may be pointed out that so far lime has produced good results at three centres—two light soils, one medium soil—medium results at three centres—one light soil, two medium soils—and only poor or no results at five centres—two medium soils and all three of the heavy soils. It may be that lime is producing effects most quickly on the light soils and most slowly on the heavy soils and thus its rate of action may be related to soil texture.

(b) “*Available*” Potash and Phosphoric Acid.

The values for “available” potash and phosphoric acid represent the percentages of potash and phosphoric acid respectively which are found in solution when 200 grammes of soil are allowed to stand in contact with two litres of a 1% solution of citric acid over a prescribed period. These values are thus of an empirical character, but they have been found of use by chemists in furnishing information on the supplies of potash and phosphoric acid in soils likely to be readily available as plant foods.

The results obtained for these on the soils of the centres have been brought together for convenience of reference in Table III.

TABLE III.

Centre.	" Available " Potash. (as K_2O).	" Available " Phosphoric Acid. (as P_2O_5).
	%	%
Malmesbury (1)	0.011	0.014
Malmesbury (2)	0.009	0.009
Pewsey	0.013	0.008
Backwell	0.010	0.009
Bridgtown	0.009	0.014
Shepton Mallet	0.007	0.010
Woolaston	0.013	0.008
Frampton Cotterell	0.015	0.007
Acton Beauchamp	0.008	0.006
Pencombe	0.012	0.004
Rodhuish	0.011	0.005

From the above table it will be seen that the percentages of "available" potash range from 0.007%, which would be considered a low value, to 0.015%, which is a medium value. The figures for "available" phosphoric acid vary from 0.004%, which is an extremely low amount to 0.014%, which is also on the low side. The values for phosphoric acid taken as a whole are low, eight cases of the eleven falling below 0.01%. Good results with some form of phosphatic manure were obtained at all centres excepting Malmesbury (1), so that with this exception it may be said that the results show a relationship with the low phosphate contents of the soils. The data for "available" potash do not provide any evidence of a relationship between this factor and the response to the manurial treatments. Phosphates produced excellent results at centres such as Shepton Mallet and Acton Beauchamp, showing the lower values and at centres such as Pencombe and Woolaston yielding the higher percentages.

(c) *Acidity or "Lime Requirement."*

The acidity of the soils of the plots has been measured by the "lime requirement" method and in Table IV the values obtained have been expressed in terms of amounts of carbonate of lime per acre required to neutralise the acidity of the surface soil to a depth of 9ins.

TABLE IV.

Centre.						Lime Requirement. Cwts. per acre CaCO_3 .
Malmesbury (1)	..	..	..	..	..	192
Malmesbury (2)	..	..	..	..	..	212
Pewsey	..	..	..	..	..	64
Backwell	..	..	..	..	..	96
Bridgtown	..	..	..	..	..	119
Shepton Mallet	..	..	..	..	..	122
Woolaston	..	..	..	..	..	49
Frampton Cotterell	..	..	..	..	..	77
Acton Beauchamp	..	..	..	..	..	36
Rodhuish	..	..	..	..	..	120
Pencombe	..	..	..	..	..	106

Examination of the data in the above table shows that the soils of the majority of the plots are strongly acid, only those at Acton Beauchamp and Woolaston having "lime requirements" less than 60 cwts. of carbonate of lime per acre. The soils are therefore well suited for testing the action of phosphates and lime under acid conditions.

Considering first the action of the phosphates, it will be noted that the only centre at which no response was recorded—Malmesbury No. 1—has an exceedingly high "lime requirement," though at Malmesbury No. 2 effects were obtained—though not very striking—where the "lime requirement" was of a similar order. Excellent results were obtained at Bridgtown, Shepton Mallet and Pencombe with slag and mineral phosphate where the "lime requirements" are high. Even in the case of superphosphate there is no clear correlation between the "lime requirement" and the response to the manure since good results were obtained at strongly acid centres such as Backwell, Bridgtown and Shepton Mallet, whilst practically no response was obtained at Woolaston from superphosphate alone.

In the case of superphosphate it is of interest to note that although no correlation exists between the "lime requirement" values and responses to the manure, yet at centres such as Pewsey, Woolaston and Pencombe the addition of lime has rendered the fertiliser effective.

Since the lime dressings have only recently commenced to show appreciable results, it is premature to discuss relationships between "lime requirements" and the action of the dressings. Moreover,

this would scarcely be permissible since only two rates of lime were applied in the experiments—at 1 ton per acre where the “lime requirement” was less than 60 cwts. of carbonate of lime per acre and at 2 tons per acre where it exceeded 60 cwts. per acre. The important point to establish, however, was to what extent lime would prove beneficial on acid pasture soils.

It appears probable that it will prove helpful in the majority of cases whilst its rate of action is possibly largely determined by the textures of the soils which determine largely the rate of downward movement of the material into the soil.

CONCLUSION.

From the evidence now available it appears possible to formulate fairly definite conclusions as to the action of the various forms of phosphatic manures in these experiments, but a further period must elapse before the action of the lime dressings will be fully appreciated. This second point is, however, probably of secondary importance to the practical problem of the initial improvement of poor acid pastures since it has been shown in the experiments that usually the desired results can be obtained relatively quickly by the use of either high grade basic slag or a finely ground mineral phosphate. Further there are no cases where lime alone has effected improvement superior to that effected by these two forms of phosphate.

The cost of applying lime to such pastures is also prohibitive, and for this reason one would hesitate ever to advise its use unless all forms of phosphatic manures had failed to produce reasonable results.

The main conclusions relative to the action of the manures drawn from the evidence obtained in the course of the experiments are as follows :—

1. High grade basic slag and finely ground North African phosphate applied at a rate to supply 150 lbs. of phosphoric acid (P_2O_5) per acre have usually effected marked improvement in the herbage of rough pastures of poor quality in cases where the soils are strongly acid in reaction.
2. Poor results from these treatments are associated with high “lime requirements” of the soils, but good results were obtained in cases where the lime requirements are equally high.

3. High grade basic slag usually effects improvement more quickly than ground North African phosphate* of a similar degree of fineness.
4. The action of superphosphate is erratic on pastures on acid soils, but there is no good correlation between lack of response to the fertiliser and the "lime requirement" value of the soil.
5. Superphosphate is frequently rendered effective in improving the herbage of rough pastures on acid soils by the addition of lime in cases where it produces negligible effects when used alone.
6. No correlation was found between soil texture and the action of the various phosphatic manures. Excellent results were obtained with basic slag on extremely light soils.
7. Improvements will usually be effected on acid pastures by the use of suitable dressings of lime and liming will frequently assist the action of phosphates in such cases.
8. Lime is much slower in action than the phosphates used in these experiments and even after four seasons the results produced by this material are inferior to those due to basic slag and North African phosphate in all cases and to those resulting from superphosphate where this fertiliser has been effective.
9. It will usually prove more economical to effect initial improvements in the herbage of rough pastures on acid soils in the area concerned by the use of high grade basic slag or finely ground North African phosphate than by the use of lime.

ACKNOWLEDGMENTS.

The best thanks of the authors and of the Experiments Committee of the Society are due to the farmers who provided the plots for these experiments and to the numerous friends who have assisted from time to time with the work entailed.

* In view of the excellent results obtained with North African phosphate on acid pastures in these experiments and the relative cheapness of this fertiliser, it seems desirable to point out that a finer grade of the material than that used in the experiments is now on the market, and it may be that this latter product will be as quick in action as the best grades of basic slag now available.

IX.—THE SOCIETY'S EXHIBITION AT BATH.

By F. H. Storr.

The year 1927 signalized the 150th Anniversary of the foundation of the Society, so that the 75th Annual Migratory Show under the Presidency of H.R.H. The Duke of York, K.G., was a notable occasion in the agricultural world. The holding of the Show at Bath emphasized both the attachment which has always been felt by the society for the city of its origin, and the value placed by Bath upon the existence of such an institution in its midst. Nor was this the only cause for attaching special significance to the occasion. In 1926 the Somerset County Agricultural Association decided that the interests of the county and of agriculture would best be served by amalgamation with the parent Society, and this was the first meeting held under the new arrangement. The Show may, without exaggeration, be said to have been worthy of the occasion.

The amount offered in Prize money was the highest ever provided by the Bath and West, while the entries of Live Stock and Produce similarly created a record. The laying out of the Show Yard was universally pronounced to approach very nearly to perfection, and reflected the greatest credit on the Superintendent of Works, Mr. H. C. Ayre. This was made possible by the willingness of the City Corporation who had recently purchased the site, to remove all walls and fences which might have interfered with his plans, and by the compact and convenient nature of the ground. A large share of the credit for the success of the Show must be given to the untiring energy displayed by the Local Committee under the Chairmanship of His Worship the Mayor, and especially by its Hon. Secretary, Col. Egbert Lewis, owing to whose efforts the Committee found themselves possessed of ample funds to provide a substantial list of local classes in addition to the ordinary unavoidable expenses. The City's Officials gave every help in their power and this implied considerable additions to their work, especially in the case of the Borough Engineer, whose kindness was unfailing and who spared neither time nor trouble in coping with the difficulties of the water supply. We may perhaps be allowed to mention one other Member of the Local Committee, Mr. H. A. Fry, who has acted as Surveyor to the Committee on the last three visits of the Society to Bath.

On the evening of the day preceding the opening of the Show the Mayor gave a memorable banquet to the Society's Council and a distinguished company of guests at the Guildhall, in a room built only a few years before the founding of the Society. In the speeches delivered, emphasis was laid on the fact that so many notable people had found inspiration in Bath for the inception of movements of national importance; among them Edmund Rack. Such an occasion could not pass without a reference to the support given to the Bath and West by the family of the Deputy President, The Most Honourable the Marquess of Bath, K.G., a support extending over four generations, and to the late Alderman Plowman, Mayor of Bath and Secretary of the Society during its previous visits in 1891, 1900 and 1912. The Deputy President in his reply drew attention to the record of service on the part of the Assistant Secretary, Mr. W. A. Smith, who, by a happy coincidence, completed in 1927 his fiftieth year with the Bath and West. On the next day, May 24th, the Mayor attended by the Members of the City Council wearing for the first time their official robes, formally inaugurated the Show. Universal regret was felt that the President was prevented by his imperial mission to Australia, from being present. On the third day of the Show, H.M. Minister of Agriculture and Fisheries, Col. The Hon. Walter Guinness, unveiled a memorial tablet to Edmund Rack at 5, St. James's Parade, where Rack had lived while in Bath. He pointed out that the Agricultural Societies in Yorkshire and Norfolk, from which Rack took his inspiration, had not lasted long, but that he had laid the foundations of the Bath Society on surer foundations. The Minister felt it a privilege to take part in commemorating a man who devoted his brilliant talents for the advantage of agriculture and of his fellows.

As has been mentioned already, the 150th Anniversary was signalized by a record entry in the Live Stock and Produce Sections, the grand total reaching the high figure of 2,322, as compared with the next highest total of 2,250 secured at Bristol, 1921. Though the decline in the numbers of heavy horses in use was reflected in the entries, the horse section was well represented in the hunter and pony classes. The big entry of dairy and dual purpose cattle are to be noted; the Dairy Shorthorn, British Friesian, Red Poll and Guernsey Classes being particularly well filled. The beef breeds were also well represented. The number of entries in the pig classes showed a reduction as was to be expected from the depressed conditions of this industry, and it cannot be said that the pigeon and rabbit classes were satisfactorily filled. But in

all other cases the exhibition of Live Stock was excellent, both in quality and quantity. The following are the comparative figures for the Centenary Show and the 1912 Show at Bath :—

ENTRIES OF LIVE STOCK AND FARM PRODUCE.

	Bath. 1877	Bath. 1912	Bath. 1927
HORSES—(with boxes)			
Agricultural	59	47	32
Hunters, Hacks and Ponies.. ..	80	135	167
	—139	—182	—199
CATTLE—			
Devon	45	35	24
South Devon	—	20	11
Shorthorn	74	74	52
Dairy Shorthorn	—	—	65
Hereford	55	53	22
Sussex	47	23	12
Abordeen Angus	—	40	38
British Friesian	—	—	55
Red Poll	—	—	42
Welsh Black	—	—	20
Ayrshire	—	—	20
Blue Albion	—	—	20
Jersey	58	101	48
Guernsey	32	53	86
Kerry .. .. .	—	) 41	11
Dexter	—		31
Milk Recorded	—	—	1
Dairy	14	46	99
	—325	—486	—657
SHEEP	221	234	192
GOATS	—	—	65
PIGS	106	135	250
POULTRY	339	595	594
PIGEONS and RABBITS	—	—	123
FARM PRODUCE—			
Cheese	79	79	86
Butter and Cream	48	101	86
Cider	—	53	70
	—127	—233	—242
	1257	1865	2322

IMPLEMENTS.

The space taken for Implements and Machinery was, though not a record, a big increase on that taken in the previous year, and was well up to the average of recent shows. An innovation was made

in the lay out of the Show Yard by devoting one side of the main avenue to the Stock Shedding, thus concentrating the trade stands in one half of the Show Ground, an arrangement which met with universal approval. This section included a building devoted to Arts and Crafts, an excellent display of hand-made articles ranging from fabrics to pottery, which attracted many visitors and numbers of customers to the exhibitors, as indeed was the case with the majority of the Stand-holders. The comparative figures for 1877, 1912 and 1927 are as follows:—

	Bath. 1877	Bath. 1912	Bath. 1927
Machinery in Motion .. feet run	1470	1484	1694
Agricultural Implements and other Exhibits not strictly Agricultural	8127	3780	1425
Seeds, Cattle Foods, Artificial Manures, etc.	840	1240	1593
Open space for Farm and Horticultural Buildings, etc.	12652	32458	69182

ENTRIES IN COMPETITIONS.

Comparative tables of entries in competitions are given below. They were on the whole excellent, but it must be remarked that the entries for Milking Competitions came almost wholly from Somerset School children. It is surprising that in this age of Clean Milk production greater interest is not taken in this branch of Agriculture.

	Bath. 1877	Bath. 1912	Bath. 1927
Butter-Making (Entries now limited) ..	—	182	72
Milking	—	14	27
Shoeing	32	62	41
	32	258	140

GENERAL REMARKS.

It may be claimed for the Society that it makes a greater effort than any other to encourage those minor industries and activities of the countryside, which it is of growing importance to maintain and increase. The Bath Show was notable for the unusually successful exhibits collected by the Federation of Women's Institutes, The British Legion and the Somerset Rural Community Council. The latter body managed to show not only the articles produced, but the craftsman actually at work. If the skill and activity displayed at the Show could be reproduced in most country districts, the problem of rural depopulation would be in a fair way

to be solved. To turn from the new to the old, the building devoted to an exhibit of Old Agricultural and Farmhouse Implements now calls for mention. Mr. A. L. Hobhouse and Mr. P. E. Martineau, of Bath, were in charge, and in spite of the fact that the number of exhibits was much smaller than had been hoped, the exhibition must be counted a distinct success, while the hope was expressed by many that it might become an integral part of the Annual Show.

The Shed was crowded every day and much interest was taken in the exhibits, while Mr. Martineau's three-minute lectures on the Ancient eight-ox Plough, and its influence on the English land-measurement, were very well received, particularly by technical experts, who made many useful comments.

Mr. Neville Grenville showed a hand-turnip cutter, some harvesters' cider barrels, and Sir Frederick Bathurst lent a very fine flail with the usual ash staff and thorn beater and a curious holly-wood swivel at the joint. Mr. A. F. Luttrell, of Dunster, showed four ox-yokes, Mr. W. Pullen, a set of horse bells and ox-bell, a flail, ox-cues and other things, Mr. H. G. White a fleam and mallet, Mr. G. Drew a hummeller—and it is worth noting that five other names were collected for this implement from visitors. They are, (1) Awner, (2) Aveller, (3) Chumper, (4) Stumper, and (5) Spiler, the last three being local. Aveller is the name in the Catalogue of the Great Exhibition of 1851. The Lord Wandsworth Agricultural College showed a model of the original hop-bagging machine; Mr. Rawlence, a series of horse shoes of various ages, with bullock shoes and other small ironwork, but the Show would have been small had not Mr. F. Lavington of Bathford kindly lent a large number of domestic utensils and a few obsolete tools. The old Kentish plough, lent by Messrs. Drake and Fletcher, excited much interest and served as the text of Mr. Martineau's discourses. This plough is pictured in the Society's Journal for 1786.

The exhibition of Flowers was as usual a great attraction to the public. Unfortunately the Chelsea Show was held in the same week, and experts may not have found as many new and rare varieties as they expect from the Bath and West, but to the "man in the street," no falling off was apparent.

The ring events, with perhaps the exception of the Officer's Jumping Class, were uniformly good, and for the first time a lady officiated as Judge in the Horse Section.

ATTENDANCE.

In view of the excellence of the Show it was a cause of particular satisfaction that so many distinguished agriculturists from the

Empire and foreign countries were able to visit Bath for the occasion. The Minister of Agriculture and Fisheries, Sir Halford Mackinder, Chairman of the Imperial Economic Committee and Members of his Committee, Lord Linlithgow and Members of the Royal Commission on Agriculture in India, and representatives of the American Guernsey Cattle Breeders' Society, were among those who were present. That the total attendance hardly came up to expectations is regrettable, but not surprising in view of the bad weather experienced on the last day but one of the Show. Even so the numbers compared very favourably indeed with those registered in 1927 by any other Society in England and Wales.

NUMBERS OF ADMISSIONS.			ADMISSION RECEIPTS.		
1877	1912	1927	1877	1912	1927
76,477	54,778	49,512	£5,961	£3,940 0s. 3d.	£6,433 3s. 11d.

X.—REPORT ON THE SOCIETY'S DAIRY DEPARTMENT AT BATH.

By A. F. Somerville, Steward.

The work in the Dairy Department was divided as in former years into the following Sections :—

Produce ; Working Dairy ; Tests ; Milking Competitions ; Goats' Milking Classes ; Clean Milk Demonstrations ; and Sales of Produce.

PRODUCE.

Cheese. There were 64 entries for Cheddar Cheese, 20 for Caerphilly, and 2 for Gloucester Cheese ; this total of 86 was a record. Mr. A. Todd, British Dairy Institute, judged the Cheddar Cheese and Mr. J. Parfitt, Newport, the Caerphilly. Both Judges reported favourably on the Exhibits which, with very few exceptions, were well up to the standard.

Butter, Soft Cheeses and Scalded Cream. Butter had 72 entries which produced a keen competition and were judged by our old friend Mrs. Luke, who also judged the 14 entries for Cream Cheeses and Scalded Cream.

The Working Dairy was under the control of Major A. H. Gibbs, as Steward. Miss M. C. Taylor, Chief Dairy Instructress for Somerset supervised the arrangements and was assisted by Miss O. E. Masters and Miss M. Brittain, from her Staff at the Cannington Farm Institute. Mrs. Stevens judged the Butter-Making Competitions, with the exception of the Champion Class, on the last day, which was judged by Mr. A. Todd. There were 72 entries for these Competitions and a high standard was reached in all Classes

and especially in the one for the Medals. The Gold Medal was won by Miss R. E. Mitchell, who had previously won the Bronze Medal in 1925 and the Silver in 1926; the Silver by Miss K. Davis; and the Bronze by Miss D. E. Nicholas. It may be mentioned that thus all three medals went to Cornwall, testifying to the excellent instruction given in that County.

Demonstrations were given by the Staff on each day in the proper method for Butter-making and the making of Clotted Cream, Soft Cheeses and Junkets, and the Testing of Milk for Butter Fat.

There was a very fair attendance on every day and interest was also taken in the Demonstrations.

The bulk of the Cream for the Dairy was obtained from the West Cornwall Creameries, Ltd., Lelant, Cornwall, and as usual was of excellent quality and delivered punctually. In consequence of the cold weather and the demand for Milk at the Pavilion being below the average, a certain amount of Cream was obtained from Milk bought in the Yard.

The Churns and Workers were supplied by Messrs G. Llewellyn and Son, Haverfordwest, and we were again indebted to Messrs. E. S. Hindley and Sons, Bourton, Dorset, who supplied Boiler, Hot Water and Steam, free of charge. This firm had a very useful and compact sterilizing plant for Clean Milk on show adjoining the Working Dairy.

TESTS.

The Cows in the Butter Test and Milking Trials Classes were weighed on the first day, stripped on the second day and milked on the third, at the usual hours of 7 a.m. and 5 p.m.

MILKING TRIALS.

Fifty-four animals were entered for these classes, but only 41 competed, 13 being in Class 145, under 950lbs. live weight and 28 in Class 146, 950lbs. live weight and over.

The Milks were weighed in the Yard and taken to the Test Room, where 4oz. were taken at each milking for samples, which were at once tested by Mr. W. H. Hopkins, Somerset and North Dorset Milk Recording Association, Yeovil, by the Gerber Tester.

The points given were on the same basis as last year; cows giving less than 3 per cent. B.F. at either Milking were disqualified.

The large number, 20, of disqualifications may be in some measure due to the fact that, on the morning, when the cows were milked, the weather was abnormally cold and damp; 6 cows failed to reach the standard of 3 per cent. on the average of both milkings.

The Tables on pages 140—141 give the results of the **Milking Trials**.

MILK TESTS.

No.	Exhibitor and Cow.	Breed.	Date of Birth.	Date of last Calf.	No. of days in Milk
CLASS 145—Cows under 950lbs. Live Weight.					
561	G. Berry, "Goddington Ella 1st" ..	Jersey	9/11/23	17/2/27	97
570	H. Leybourne Popham, "Beauvelande Doreen" ..	Jersey	22/6/20	25/4/27	30
572	Mrs. E. Watts, "Galen" ..	Jersey	4/10/21	13/1/27	132
574	Sir G. Stanley White, Bart., "Primula of Hollywood" ..	Jersey	13/12/21	1/12/26	175
612	W. Dunkels, "Fernhill Rose" ..	Guernsey	8/8/23	5/2/27	109
627	A. Chester Beatty, "Calehill Dewdrop" ..	Guernsey	14/3/24	15/10/26	222
705	Miss D. Box, "Wightwick Dot" ..	Dexter	26/4/23	24/4/27	31
736	G. Berry, "Winter Dinah" ..	Jersey	14/12/24	23/3/27	63
739	H. F. Earl, "Grinstead Fuschia" ..	Dexter	6/2/23	28/2/27	86
740	H. F. Earl, "Charlewood" ..	Dexter	1/10/18	24/12/26	152
741	A. W. Huntington, "Mariette's Violet" ..	Jersey	23/7/17	1/4/27	54
742	A. W. Huntington, "Milkmaid" ..	Jersey	4/5/21	15/2/27	99
745	Mrs. Mansel-Jones, "Miss of Brook Farm"	Jersey	1/11/20	15/2/27	99
CLASS 146.—Cows 950lbs. and over, Live Weight.					
280	J. H. Ismay, "Iwerne Diadem 2nd" ..	Shorth'rn	4/3/21	26/1/27	119
281	J. H. Ismay, "Iwerne Lady Bess 1st" ..	Shorth'rn	1/1/23	2/4/27	53
283	Major G. Miller Munday, "Sweet Barbara 11th" ..	Shorth'rn	22/12/19	5/3/27	81
286	R. N. Tory, "Fulmer Melody" ..	Shorth'rn	22/3/21	21/2/27	93
367	H. J. P. Davies, "Sudbourne Dairymaid 4th" ..	B.Friesian	6/6/21	29/4/27	26
368	The Hache Herd, "Hache Amour" ..	B.Friesian	21/5/23	18/4/27	37
372	F. and T. Neame, "Macknade Felicity" ..	B.Friesian	28/11/16	6/4/27	49
373	Lord Rayleigh, "Terling Lead 18th" ..	B.Friesian	15/11/21	2/4/27	53
375	Messrs. Sayers, "Groundwell Primrose 4th"	B.Friesian	6/5/23	13/4/27	42
461	Mrs. M. M. Fitzgerald, "Antwick Familiarity" ..	Red Poll	19/1/22	15/3/27	71
462	Viscount Folkestone, "Longford Duck" ..	Red Poll	12/9/21	30/4/27	25
466	Major J. A. Morrison, D.S.O., "Basildon Royal Rosie" ..	Red Poll	23/7/22	10 4/27	45
467	Major J. A. Morrison, D.S.O., "Basildon Rosalind 2nd" ..	Red Poll	1/11/21	10/5/27	15
522	The Earl of Eglinton and Winton, "Eglinton Mains Winsome" ..	Ayrshire	9/11/19	10/5/27	15
526	C. E. Tory, "Low Barclay Cinderella 4th"	Ayrshire	24/12/22	10/5/27	15
540	H. Gillett, "Bradbourne Cynthia 2nd" ..	Blue Alb.	10/12/22	9/5/27	16
541	R. Holbech, "Seagry Melody" ..	Blue Alb.	..	9/4/27	46
563	G. Cross, "Doreen" ..	Jersey	4/3/23	24/12/26	152
564	Mrs. Evelyn, "Fairlawne Hussy" ..	Jersey	8/8/16	12/1/27	133
623	E. E. Palmer, "Mawgan Lady Glen 2nd" ..	Guernsey	1/5/18	8/4/27	47
625	W. White & Sons, "Tregothnan Thrush" ..	Guernsey	1/8/21	11/3/27	75
626	W. White & Sons, "Elfordleigh Beauty" ..	Guernsey	13/11/23	3/12/26	173
737	E. Christian, "Dene Maid of Wargrave" ..	Guernsey	25/1/19	3/1/27	142
747	A. H. W. Osborne & Sons, "Pretymaid 2nd"	Shorth'rn	1/6/21	13/5/27	12
748	Strutt and Parker Farms, Ltd., "Lavenham Wallen 9th" ..	B.Friesian	6/6/22	12/4/27	43
749	W. Turner, "Hawthorn Freda" ..	B.Friesian	19/9/22	4/5/27	21
750	W. Turner, "Hawthorn Flora" ..	B.Friesian	27/9/22	3/5/27	22
752	W. R. Withers, "Peggy" ..	Shorth'rn	1920	6/4/27	49

"Hare" Challenge Cup for Dexter Cow or Heifer—No. 740, H. F. Earl's "Charlewood." Reserve—No. 741, A. W. Huntington's "Mariette's Violet."

MILK TESTS.

Yield of Milk.			Butter Fat.		Points.			Total.	Award.
Morning.	Evening.	Total.	Morning.	Evening.	Lactation.	Milk.	B.F.		
lbs. ozs.	lbs. ozs.	lbs. ozs.							
23 12	17 0	40 12	3.9	5.0	5.7	40.75	18.45	64.90	H.C.
28 4	13 8	41 12	3.2	2.7	Nil	41.75	.53	42.28	Fat below Standard.
22 12	15 12	38 8	4.2	6.7	9.2	38.50	28.52	76.22	Third Prize.
12 12	10 12	23 8	4.6	4.9	12.0	23.50	12.16	49.10	
24 4	17 0	41 4	4.4	5.6	6.9	41.25	26.04	74.19	Reserve.
17 8	13 0	30 8	3.9	4.8	12.0	30.50	13.05	55.55	C.
11 4	8 12	20 0	3.8	5.0	Nil	20.00	8.83	28.83	
25 0	18 4	43 4	2.7	6.1	2.3	43.25	16.35	61.90	Fat below Standard.
22 8	18 4	40 12	2.9	4.8	4.6	40.75	10.20	55.55	Fat below Standard.
19 0	12 0	31 0	3.7	4.3	11.2	31.00	9.63	51.83	C.
28 4	22 4	50 8	4.1	5.4	1.4	50.50	28.15	80.05	Second Prize.
23 12	17 8	41 4	3.2	4.2	5.9	41.25	8.58	55.73	C.
28 4	23 12	52 0	3.4	6.2	5.9	52.00	29.09	86.99	First Prize.
lbs. ozs.	lbs. ozs.	lbs. ozs.							
16 12	12 8	29 4	4.7	5.6	7.9	29.25	20.32	57.47	C.
21 4	14 12	36 0	2.8	3.4	1.3	36.00	.54	37.84	Fat below Standard.
27 4	20 4	47 8	1.7	3.2	4.1	47.50	-- 10.46	41.14	Fat below Standard.
33 4	27 0	60 4	2.6	4.3	5.3	60.25	7.26	72.81	Fat below Standard.
43 8	35 8	79 0	2.4	4.1	Nil	79.00	4.31	83.31	Fat below Standard.
33 0	29 4	62 4	1.6	3.1	Nil	62.25	-- 14.43	47.82	Fat below Standard.
46 0	32 12	78 12	2.4	3.2	.9	78.75	-- 7.02	72.63	Fat below Standard.
36 0	27 12	63 12	2.5	3.8	1.3	63.75	1.40	66.45	Fat below Standard.
19 4	19 8	38 12	2.1	2.8	.2	38.75	-- 7.08	31.87	Fat below Standard.
33 8	24 0	57 8	2.6	3.8	3.1	57.50	1.93	62.53	Fat below Standard.
27 0	21 0	48 0	2.5	5.3	Nil	48.00	11.60	59.60	Fat below Standard.
28 8	24 12	53 4	2.6	4.9	.5	53.25	11.87	65.62	Fat below Standard.
29 12	21 8	51 4	3.6	4.3	Nil	51.25	15.26	66.51	H.C.
29 4	25 8	54 12	2.6	4.4	Nil	54.75	8.0	62.75	Fat below Standard.
24 8	21 8	46 0	3.0	4.3	Nil	46.00	9.31	55.31	C.
22 8	17 12	40 4	3.4	3.9	Nil	40.25	8.22	48.57	
26 8	21 12	48 4	2.8	3.4	.6	48.25	1.13	49.98	Fat below Standard.
17 4	17 0	34 4	3.3	6.7	11.2	34.25	22.68	68.13	Third Prize.
23 12	20 4	44 0	3.4	5.2	9.3	44.00	18.01	71.31	First Prize.
24 0	20 0	44 0	3.1	5.0	.7	44.00	13.93	58.63	C.
27 4	21 8	48 12	3.5	4.5	3.5	48.75	15.29	67.54	Reserve.
18 8	13 12	32 4	5.2	5.7	12.0	32.25	25.93	70.18	Second Prize.
18 4	9 12	28 0	4.8	6.7	10.2	28.00	22.97	61.17	H.C.
32 8	27 4	59 12	2.8	4.2	Nil	59.75	8.73	68.48	Fat below Standard.
40 0	33 8	73 8	2.1	4.2	.3	73.50	1.40	75.2	Fat below Standard.
29 4	20 8	49 12	3.0	3.4	Nil	49.75	2.73	52.48	C.
36 0	31 4	67 4	1.9	4.0	Nil	67.25	-- 2.79	64.46	Fat below Standard.
36 8	28 8	65 0	1.8	4.0	.9	65.00	-- 5.10	60.80	Fat below Standard.

Royal Jersey Agricultural Society's Special Prize of £10 10s.—No. 745, Mrs. Mansel-Jones's "Miss of Brook Farm."

BUTTER TEST.

PARTICULARS OF COWS TESTED, YIELDS OF MILK AND BUTTER, AWARDS, ETC.

No.	Exhibitor and Cow.	Breed.	Date of Birth.	Date of Last Calf.
CLASS 147. Cows under 950lbs. live weight.				
561	G. Berry, "Goddington Ella 1st" ..	Jersey	9/11/23	17/2/27
572	Mrs. E. Watts, "Galen" ..	Jersey	4/10/21	13/1/27
573	Mrs. E. Watts, "Verandah's Phyllis" ..	Jersey	12/8/22	4/1/27
574	Sir G. Stanley White, Bart., "Primula of Hollywood" ..	Jersey	13/12/21	1/12/26
612	W. Dunkels, "Fernhill Rose" ..	Guernsey	8/8/23	5/2/27
627	A. Chester Beatty, "Calehill Dewdrop" ..	Guernsey	14/3/24	15/10/26
736	G. Berry, "Winter Dinah" ..	Jersey	14/12/24	23/3/27
739	H. F. Earl, "Grinstead Fuschia" ..	Dexter	6/2/23	28/2/27
741	A. W. Huntington, "Mariette's Violet" ..	Jersey	23/7/17	1/4/27
742	A. W. Huntington, "Milkmaid" ..	Jersey	4/5/21	15/2/27
745	Mrs. Mansel Jones, "Miss of Brook Farm" ..	Jersey	1/11/20	15/2/27
CLASS 148.—Cows 950lbs.& over live weight.				
280	J. H. Ismay, "Iwerne Diadem 2nd" ..	Shorthorn	4/3/21	26/1/27
281	J. H. Ismay, "Iwerne Lady Bess 1st" ..	Shorthorn	1/1/23	2/4/27
283	Major G. Miller Mundy, "Sweet Barbara 11th" ..	Shorthorn	22/12/19	5/3/27
286	R. N. Tory, "Fulmer Melody" ..	Shorthorn	22/3/21	21/2/27
367	H. J. P. Davies, "Sudbourne Dairy Maid 4th" ..	B. Friesian	6/6/21	29/4/27
368	The Hache Herd, "Hache Amour" ..	B. Friesian	21/5/23	18/4/27
461	Mrs. M. M. Fitzgerald, "Antwick Familiarity" ..	Red Poll	19/1/22	15/3/27
462	Viscount Folkestone, "Longford Duck" ..	Red Poll	12/9/21	30/4/27
466	Major J. A. Morrison, D.S.O., "Basildon Royal Rosie" ..	Red Poll	23/7/22	10/4/27
467	Major J. A. Morrison, D.S.O., "Basildon Rosalind 2nd" ..	Red Poll	1/11/21	10/5/27
563	G. Cross, "Doreen" ..	Jersey	4/3/23	24/12/26
564	Mrs. Evelyn, "Fairlawne Hussy" ..	Jersey	8/8/16	12/1/27
614	Sir E. Hambro, K.B.E., "Clatford Meadow Sweet 12th" ..	Guernsey	2/8/20	1/1/27
622	C. Norman, "Bosistow Iris" ..	Guernsey	10/1/18	3/5/27
623	E. E. Palmer, "Mawgan Lady Glen 2nd" ..	Guernsey	1/5/18	8/4/27
624	Mrs. J. Sutcliffe Pyman, "Fullerton Broom" ..	Guernsey	30/7/22	11/2/27
625	W. White and Sons, "Tregothnan Thrush" ..	Guernsey	1/8/21	11/3/27
626	W. White and Sons, "Elfordleigh Beauty" ..	Guernsey	13/11/23	3/12/26
737	E. Christian, "Dene Maid of Wargrave" ..	Guernsey	25/1/19	3/1/27
749	W. Turner, "Hawthorne Freda" ..	B. Friesian	19/9/22	4/5/27
750	W. Turner, "Hawthorne Flora" ..	B. Friesian	27/9/22	3/5/27
752	W. R. Withers, "Peggy" ..	Shorthorn	1920	6/4/27

Prize for Guernsey Cow obtaining best Result—No. 612, W. Dunkel's "Fernhill Rose."

BUTTER TEST.

PARTICULARS OF COWS TESTED, YIELDS OF MILK AND BUTTER, AWARDS, ETC.

No. of days in Milk	Milk yield in 24 hours.		Butter yield.	Ratio viz., lbs. Milk to lbs. Butter	Points.			Award.
					Lacta- tion.	Butter.	Total.	
	lbs. ozs.	lbs. ozs.						
97	40 12	2 1	19.75	5.7	33	38.7	C.M.	
132	38 8	2 6½	15.89	9.2	38.75	47.95	First Prize and Gold Medal.	
141	39 12	1 13	22.06	10.1	29.0	39.1	C.M.	
175	23 8	1 3¾	19.03	12.0	19.75	31.75		
109	41 4	2 4¾	17.95	6.9	36.75	43.65	Third Prize.	
222	30 8	1 5¾	22.43	12.0	21.75	33.75		
63	43 4	1 15	22.32	2.3	31.0	33.3	C.M.	
86	40 12	1 10¼	24.99	4.6	26.25	30.85		
54	50 8	2 10	19.23	1.4	42.0	43.4	Reserve and Bronze Medal.	
99	41 4	1 9¼	25.88	5.9	25.5	31.4		
99	52 0	2 9¾	19.92	5.9	41.75	47.65	Second Prize and Silver Medal.	
	lbs. ozs.	lbs. ozs.						
119	29 4	1 10¼	17.82	7.9	26.25	34.15		
53	36 0	1 10¾	53.58	1.3	10.75	12.05		
81	47 8	1 14¼	52.41	4.1	14.5	18.6		
93	60 4	2 2½	27.94	5.3	34.5	39.8	H.C.	
26	79 0	2 9¾	30.27	Nil	41.75	41.75	Reserve.	
37	62 4	1 9½	39.05	Nil	25.5	25.5		
71	57 8	1 13	31.72	3.1	29.0	32.1		
25	48 0	1 13½	26.03	Nil	29.5	29.5		
45	53 4	2 1½	25.24	.5	33.75	34.25		
15	51 4	2 2	24.11	Nil	34.0	34.0		
152	34 4	1 14½	18.11	11.2	30.25	41.45	C.M.	
133	44 0	2 1½	21.01	9.3	33.5	42.8	First Prize and C.M.	
144	39 8	1 15½	20.06	10.4	31.5	41.9	Third Prize.	
22	50 8	1 12	28.85	Nil	28.0	28.0		
47	44 0	1 14¼	23.08	.7	30.25	30.95		
103	25 8	1 2½	22.05	6.3	18.5	24.8		
75	48 12	2 2	22.94	3.5	34.0	37.5	H.C.	
173	32 4	1 14¼	17.05	12.0	30.25	42.25	Second Prize.	
142	28 0	1 10½	16.74	10.2	26.75	36.95	H.C.	
21	49 12	1 11¼	29.21	Nil	27.25	27.25		
22	67 4	1 11	39.85	Nil	27.00	27.00		
49	65 0	2 2	30.58	.9	34.0	34.9		

Reserve.—No. 626, W. White & Sons' "Effordleigh Beauty."

GOAT MILK QUALITY TESTS.

No.	Exhibitor and Goat	Date of Last Kid	No. of days in Milk.
CLASS 194.			
945	Miss C. Chamberlain, " Whimsical of Westons "	24/3/27	61
947	Miss E. M. Pope, " Playfellow of Bashley "	26/3/27	59
948	Mrs. M. J. Rutter, " Raydon Morella "	1/3/27	84
949	Mrs. M. J. Rutter, " Raydon Aerial "	3/4/27	51
950	Miss J. Port, " Wells Pearl "	26/2/27	87
951	Miss E. Skidmore, " Heddon Sainfoin "	19/3/27	66
953	Mrs. T. Butler, " Bees Wing "	22/2/27	91
955	Miss C. Chamberlain, " Weird of Westons "	24/3/27	61
956	Mrs. F. I. Morcom, " Didgemere Dimple "	27/3/27	58
957	Mrs. F. I. Morcom, " Cornish Fudge "	13/2/27	100
958	Mrs. F. I. Morcom, " Cornish Guinevere "	29/4/27	25
960	Mrs. F. I. Morcom, " Cornish Quill "	1/4/27	53
961	Miss E. M. Pope, " Proverb of Bashley "	3/4/27	51
981	Mr. R. M. Butler, " Theydon April "	2/4/27	52
982	Miss E. Skidmore, " Heddon Saffron "	8/2/27	105

Challenge Certificate for Best Dual Purpose Goat : No. 947—First.

No. 945—Reserve

GOAT MILK TESTS.

No	Exhibitor and Goat	Date of Last Kid.	No. of days in Milk
CLASS 195.			
945	Miss C. Chamberlain, " Whimsical of Westons "	24/3/27	61
947	Miss E. M. Pope, " Playfellow of Bashley "	26/3/27	59
950	Miss J. Port, " Wells Pearl "	26/2/27	87
951	Miss E. Skidmore, " Heddon Sainfoin "	19/3/27	66
952	Miss E. Skidmore, " Heddon Soapsuds "	7/2/27	106
955	Miss C. Chamberlain, " Weird of Westons "	24/3/27	61
961	Miss E. M. Pope, " Proverb of Bashley "	3/4/27	51
963	Miss C. Skidmore, " Salt Cellar "	4/2/27	109
982	Miss E. Skidmore, " Heddon Saffron "	8/2/27	105
983	Mr. R. M. Butler, " Dimples Dinah "	6/4/27	48

GOAT MILK QUALITY TESTS.

Yield of Milk.				Butter Fat.		Points.				Award.
a.m.	p.m.	Total.		% a.m.	% p.m.	Milk.	Lacta- tion.	Butter Fat.	Total.	
lbs. ozs.	lbs. ozs.	lbs.	ozs.							
5 12	5 13	11	9	3.4	4.3	11.56	.3	8.9	20.76	First Prize. Second Prize. Third Prize. Reserve.
7 8	7 4	14	12	3.1	3.6	14.75	.3	9.88	24.93	
7 6	6 12	14	2	3.4	3.4	14.12	.7	9.6	24.42	
5 9	5 8	11	1	5.0	4.5	11.06	.1	10.5	21.66	
6 0	5 12	11	12	4.0	3.7	11.75	.7	9.04	21.49	
5 0	5 0	10	0	3.4	3.5	10.00	.4	6.9	17.3	
3 9	3 7	7	0	4.3	4.2	7.00	.8	5.95	13.75	
4 1	4 12	8	13	3.7	4.7	8.81	.3	7.4	16.51	
5 6	5 1	10	7	3.6	3.6	10.43	.3	7.5	18.23	
4 7	4 12	9	3	3.4	5.0	9.18	1.0	7.71	17.89	
4 4	4 0	8	4	5.4	6.2	8.25	Nil	9.57	17.82	
4 10	4 2	8	12	4.3	4.6	8.75	.2	7.78	16.73	
4 9	4 5	8	14	3.9	4.0	8.87	.1	7.00	15.97	
1 14	1 10	3	8	4.5	5.1	3.50	.2	3.36	7.06	
4 0	4 4	8	4	4.4	4.5	8.25	1.0	7.34	16.59	

GOAT MILK TESTS.

Yield of Milk.				Points.			Award.
a.m.	p.m.	a.m.	Total.	Milk.	Lacta- tion.	Total.	
lbs. ozs.	lbs. ozs.	lbs. ozs.	lbs. ozs.				
5 12	5 13	5 13	17 6	17.37	.3	17.67	Reserve. First Prize. Third Prize.
7 8	7 4	7 3	21 15	21.93	.3	22.23	
6 0	5 12	6 0	17 12	17.75	.7	18.45	
5 0	5 0	5 6	15 6	15.37	.4	15.77	
4 11	4 12	4 6	13 13	13.81	1.1	14.91	Second Prize.
4 1	4 12	3 11	12 8	12.50	.3	12.80	
4 9	4 5	4 7	13 5	13.31	.1	13.41	
6 1	5 12	5 13	17 10	17.62	1.1	18.72	
4 0	4 4	4 9	12 13	12.81	1.0	13.81	
4 12	4 11	4 3	13 10	13.62	.1	13.72	

The Average results for each breed were as follows :—

<i>Breed.</i>	<i>No. Cows.</i>	<i>Milk Yields.</i>		<i>Days in Milk.</i>	<i>B. F.</i>	
		<i>lbs.</i>	<i>ozs.</i>		<i>Morning p.c.</i>	<i>Evening. p.c.</i>
Jersey	10	40	15.6	103.04	3.6	5.31
Guernsey	6	37	7.3	127.03	4.15	5.38
British Friesian	8	64	12	36.62	2.25	3.57
Shorthorn	6	49	10	67.83	2.78	4.11
Red Poll	4	52	8	39.00	2.82	4.57
Dexter	3	30	9.3	89.06	3.46	4.7
Ayrshire	2	55	6	15.00	2.08	4.35
Blue Albion	2	44	4	31.00	3.1	3.65

The Dexter Cattle Society's "Hare Challenge Cup" was won by Mr. H. F. Earl's "Charlewood," while Mr. Mansel-Jones, with "Miss of Brook Farm," took the special Prize of £10 10s., given by the Royal Agricultural Jersey Society for the Jersey Cow winning the highest number of points in the Milk Test Classes.

BUTTER TEST.

Forty-one cows entered for these Tests, but of these 8 were absent, leaving 33 to compete ; of these 11 were in Class 147, under 950lbs. live weight, and 22 in Class 148, 950lbs. live weight and over.

The Milks were separated after each Milking and the Creams churned the following morning. Churning commenced at 7.7 a.m. and was finished at 10.45 a.m. Miss Taylor supervised the Churning ; all creams being churned at 54% ; the periods for churning varied from 9 minutes to 81 minutes, in the case of one cream. Where cows were entered also for the Milking Trials, from whose milks samples of 4oz. had been taken at each milking, an allowance of $\frac{1}{2}$ oz. Butter was made, where the B.F. averaged 5 per cent. and over, and when below that figure, $\frac{1}{4}$ oz. Butter was added.

The Tables on pages 142—143 give the results.

The Average results for each breed were as follows :—

<i>Breed.</i>	<i>No.</i>	<i>Days in Milk.</i>		<i>Milk.</i>		<i>Butter.</i>		<i>Ratio Milk to lb. Butter.</i>
		<i>lbs.</i>	<i>ozs.</i>	<i>lbs.</i>	<i>ozs.</i>	<i>lbs.</i>	<i>ozs.</i>	
Shorthorn	5	79	47	6	1	8		31.73
Red Poll	4	39	52	8	1	15.56		26.60
British Friesians	4	26.5	64	9	1	14.31		34.09
Jerseys	10	114.5	40	12.4	2	5.25		17.59
Guernseys	9	115.2	37	12.9	1	12.64		21.12
Dexter	1	86	40	12	1	10.25		24.99

Special prizes of Gold, Silver and Bronze Medals were given by the English Jersey Cattle Society, and a special prize of £5 was given by the English Guernsey Cattle Society for cows of that Breed. The Awards appear in the Tables on pages 142—143.

SALES OF PRODUCE.

Milk from the Yard was purchased at 8d. per gallon, and it and products from Milk were sold at the Pavilion, which was under the supervision of Miss Taylor, who was assisted by Miss M. Mackie and Miss E. Corp. Capt. Clive acted as Steward and Mr. Read again had charge of the purchase of the Milk and keeping the accounts.

MILKING COMPETITIONS.

There were two open Classes for Men and Women, and two Classes for Boys from Elementary Schools, who had previously received instruction in Milking under the Somerset County Council.

For the open Classes there were 13 entries and for the Schools Class 14 entered.

The Classes were judged by Miss M. C. Taylor, who expressed herself as very pleased with the work done and especially by the lads from the Schools. The Minister for Agriculture paid a visit to the Dairy and saw the boys at the Milking Competition on the 26th May. Mr. J. G. Derriman, 75, Wellsway, Bath, kindly provided the cows which were kept in the Show Yard during the whole time.

Mr. G. N. Rawlence was the Steward in Charge of these Competitions.

GOATS' MILKING CLASSES.

As in former years, there were two Classes; 194 for Quality (Butter Fat only). Quantity and Time, two Milkings; and 195 for Quantity and Time only, three Milkings.

194. 18 Goats entered for this Class but three were absent.

195. 11 Goats entered for this Class and only one was absent.

All the goats were stript at 6 p.m. on the 24th and both Classes milked at 6 a.m. and 6 p.m. on the 25th and Class 195 was again milked at 6 a.m. on the 26th. The weighing of the Milks was undertaken by Mr. G. N. Rawlence and the testing of the Milks in Class 194 by Mr. W. H. Hopkins. Points were awarded on the Scale laid down by the British Goat Society.

In addition to the prizes offered by the Bath and West Society, a Challenge Certificate was given by the British Goat Society for the Best Dual Purpose Goat, which had to compete in Class 194 as well as in an Inspection Class.

The Tables on pages 144—145 give the results of these Milking Trials and the winner of the Challenge Certificate.

Mr. G. N. Rawlence gave valuable assistance in working out the results of these Competitions.

CLEAN MILK DEMONSTRATIONS.

The University College, Reading, again sent representatives to give these Demonstrations, which were well attended and created great interest. H. Miles, Esq., Farrington Gurney, kindly lent the Society two Tuberculin Tested Cows for these Demonstrations and I desire on behalf of the Society to tender our thanks to him.

In conclusion, I desire to thank Miss Taylor and her Staff and my Colleagues, Major A. H. Gibbs, Capt. Clive and Mr. G. N. Rawlence, for the help they gave, and also to thank Mr. Read, whose assistance in the Sales Department was invaluable, and the Somerset and North Dorset Milk Recording Society for having so kindly lent us the Services of their Recorder, Mr. W. H. Hopkins, whose work in connection with the testing of the Cows' and Goats' Milk left nothing to be desired.

XI.—REPORT ON THE FORESTRY SECTION AT BATH.

By Godfrey Lipscomb, Steward.

In view of the Anniversary Meeting at Bath, it was the wish of the Forestry Committee to make the Section as complete as possible, and really representative of the advance in Forestry Science that has been made during the past quarter of a century, and this effort was ably backed up by Exhibitors. As a result a most interesting and educative series of exhibits was put together. To those who have watched and encouraged the development, it was most satisfactory to compare the Forestry Section of say 20 years ago with that of to-day. The former was a more or less haphazard collection of specimens from Estates, in which duplication and repetition made competition rather than instruction the main feature. To-

day repetition is largely absent, and in its place the exhibits bear witness to the more scientific attention paid to woods and plantations on the majority of estates—the improved growth of timber—the better utilization of small and second grade timber—the use of home grown timber, more and more for estate and other purposes, and last, but by no means least, the evidence provided by the Forestry Commission and the Forestry Products Research Board, of the sound scientific and economic effort being made to help English Forestry—efforts that are largely outside the scope and ability of individual owners of estates, however keen and willing, but which should have a very real bearing on the future of the industry. Without doubt the policy pursued is wise, as the available evidence points to a world shortage of timber in the not too distant future.

Taking the Section in detail, we find in Class I. the exhibit from Charborough Park—so well put together by Mr. H. R. Munro, the Estate Forester again successful in taking the Society's Gold Medal and the Silver Medal given by the Royal English Arboricultural Society; an excellent collection that brings together, and explains clearly, specimens that illustrate the practice of well conducted Estate Forestry. The Silver Medal was taken by a very good exhibit from the Duke of Wellington, under the charge of Mr. Brown. The Duke was one of the earliest owners to grasp the importance of Forestry Sections at agricultural shows. He exhibited in this section at the Bath and West Shows of 20 odd years ago and the Committee was very glad to welcome an exhibit from him again. The Marquis of Bath took the Bronze Medal with an exhibit from the fine timber on his Estate. There was a good entry in the Class II. for Gates, Mr. J. H. Benyon being 1st and the Hon. Mrs. Smyth 2nd. Gates from Viscount Folkestone and Lt.-Col. Sir Charles Miles were highly commended.

There was an excellent show of boards, particularly from Mr. A. F. Luttrell of Dunster, who took the Silver Medal in both the Coniferous and non-Coniferous Classes. The Marquis of Bath took the Bronze Medal with some good boards in the Coniferous class and Mr. J. H. Benyon in the non-Coniferous Class. In the new class for Estate Working Forestry Plans there were three entries, all most interesting to those connected with Forestry, and the reports and plans amply repaid any trouble taken to inspect them. It is to be hoped that this class, illustrating a most essential part of Estate Forestry, may be more widely contributed to in the future. The Silver Medal in this class was taken by the Department of

Forestry of Oxford University for working plans for the Hon. H. S. Vestey, Stowell Park, the working plans of Sir Henry Hoare's Estate Stourhead taking the Bronze Medal. In Class VI. the Forestry Commission sent an excellent exhibit under the care of Mr. Le Sueur, stating clearly the objects aimed at by the Commission, and showing by statistics and illustrations the position with regard to timber and the threatened world shortage. Mr. Le Sueur has collected some very interesting and startling figures, which it will be well to quote: (1) An area as big as Wales, Hampshire, Dorset, Somerset, Devon and Cornwall—ten million acres—is annually burnt in North America by forest fires. (2) The United Kingdom depends on other countries for 92% of its timber supplies. (3) 50% of the world's supply is grown in North America. In the United States of America the annual cut and loss is *six times* the annual growth. In Canada *twice* the annual growth. These are figures that make one think. Again, 42,000 cubic feet of round timber are required to make paper for *one* issue of the *Daily Mail*. Some of the exhibits of the Commission told a plain story, notably a model house in the construction of which home grown stuff could and should have been used, but which in the past has been entirely built of foreign timber. The Department of Scientific and Industrial Research (Forestry Products Research Laboratory), sent a really good exhibit and one that showed, possibly more clearly than any other in the Section, the great advance that has been made in the *Science* of Forestry. This is the first occasion on which this newly formed body has exhibited at a Bath and West Forestry Section, and I cannot therefore do better than give, *in extenso*, a report on their exhibit written by Major F. M. Oliphant, Assistant Director, who also gives a short explanation of the origin of the Department. He says:—

“ Following a recommendation by the Imperial Forestry Conference of 1920, the Government established, under the Department of Scientific and Industrial Research, a Forest Products Research Board with the duties of organizing and carrying on research into the utilization of timber and other forest products. A review of circumstances and needs, as disclosed by a thorough survey made by the Board, led the Government to set up the Forest Products Research Laboratory, which was accordingly brought into existence in October, 1925, in temporary quarters within the Royal Aircraft Establishment, South Farnborough, Hants, and has just moved to its permanent station at Princes Risborough, Buckinghamshire. The object of research in forest products is mainly to promote the

use of Home—and Empire—grown timber in place of foreign supplies, and to reduce waste by securing more efficient utilization.

The Laboratory has been organized under ten Sections, namely, Timber Mechanics (strength properties), Seasoning (proper methods, natural and artificial), Timber Physics (basic principles of seasoning), Wood Technology (wood structure and identification), Pathology (Dry Rot and insect attack), Wood Preservation (creosoting, etc.), Utilization (uses and manufacture; liaison with industry), Wood-Working (machining and finishing), Wood Chemistry (chemical constitution, by-products), and Permanent Records (recording and issue of information).

The exhibit at the Bath and West Show was intended to give a simple illustration of the character of the work undertaken by the different Sections of the Laboratory. It sought to show that the scientific and practical aspects of the work receive equal attention and that a close liaison is maintained between the two—that science is the best form of practice.

Starting with CONVERSION, an attempt was made to bring before the public the great waste that necessarily occurs in sawing timber, especially when it is of rough character. Photographs of saw-mill operations, with a disc of the oak log converted, showed the waste in this example to be at least 30 per cent. of the true volume, although the conversion was done on careful, up-to-date lines; this percentage is under rather than over the average, and to it must be added waste in seasoning. At present, almost the only value of mill-waste is in domestic fuel or for the creation of power. This high unavoidable waste makes it doubly important to eliminate all avoidable waste by careful and efficient utilization. Methods of log conversion were displayed, with the various cuts marked on discs. Attention was drawn to the care needed in conversion by contrasting samples of well-converted, well-seasoned English oak furniture squares with samples poorly converted and half seasoned, further illustrated by American samples which were dry and attractively prepared for the English market. Poor preparation has the effect of driving users of home-grown timbers to seek foreign supplies. Photographs and samples were shown to demonstrate that the poor quality of home-grown Douglas fir timber is probably due to youth rather than the English climate. The exhibit showed that the tree in its native home is nearly as fast-grown in youth, and that the clean, narrow-ringed timber begins to appear at about 30 years. It is a question for investigation by how much the present rotation of 60 years should be extended to

produce an adequate amount of timber of adequate width and quality on conversion of the tree.

SEASONING was represented by models showing correct methods of piling sawn timber for yard seasoning, calling attention to points of importance. In kiln-drying, a model of an external blower kiln was exhibited, showing the method of heating, humidifying and circulating the air. Defects due to improper kiln-drying were demonstrated by examples.

Under GRADING were shown examples of 1st, 2nd and 3rd quality ash, used in tennis racquet bends, with a similar exhibit for felloes.

The items under MANUFACTURE dealt with the popular idea that timber can be used in its entirety, by means of an exhibit of full-sized pieces required for different purposes, showing the high quality needed, the wastage inseparable from conversion, and the wastage—some of which could be prevented silviculturally—due to defects, these two sources of waste being well shown in the example of an oak plank marked for cutting out chair parts. Articles were displayed showing the excellence of the British product in colour, grain and craftsmanship. Samples of kiln-dried Corsican pine boards and flooring demonstrated the facts that this timber takes a very fair machine finish, seasons without difficulty, and has character. As this tree produces a big volume of timber compared with other conifers and is accommodating silviculturally, it may prove of value as a source of timber for interior work in dry situations, where its present reputation for brittleness and its high proportion of sapwood would be no detriment. These samples also demonstrated the marked improvement which takes place in the timber as the tree grows older, signifying, as in Douglas fir, that it might be profitable to lengthen the rotation of this tree.

The work in TIMBER MECHANICS was demonstrated by model testing machines, showing how pit-prop tests and box tests are carried out. There were also examples of the small, clear specimens used in obtaining the optimum strength of the different species, needed to study the influence of defects, density, rate of growth and moisture content.

In MYCOLOGY, the exhibit demonstrated the diagnosis, prevention and cure of dry rot and other troubles due to fungi, with the conditions inviting decay. Examples of decay, characteristic of the two fungi most responsible for decay in houses, the Dry Rot Fungus (*Merulius Lacrymans*) and the Cellar Fungus, (*Coniophora cerebella*) were shown.

The exhibit under ENTOMOLOGY showed examples of damage to furniture and other wooden products, characteristic of the various kinds of wood-destroying beetles, with cases showing the beetles and their larvæ.

Under WOOD TECHNOLOGY, samples of timber and corresponding microphotographs were shown to demonstrate the influence of growth in producing either weak or strong timber of any species. It was clear that the weak, spongy quality of the sample of ash with narrow annual rings was due to the large proportion of porous spring wood and lack of dense summer wood, whereas in the faster-grown material these conditions were reversed."

The Department of Forestry at Oxford sent a most useful exhibit, showing systematically the stages and physiological processes in the growth of trees. This exhibit, taken in conjunction with the working plans shown by them in Class V., demonstrate what excellent work the Department is doing. Mr. A. F. Luttrell in this Class sent an outstanding collection of planks from trees grown on his Estate, the beautiful brown oak being prominent. The Surveyor's Institution sent their "Ash" exhibit, which gives such an excellent history of the growth and uses of that wood and the advice given is very much to the point: "Large ash generally means *old* ash, old ash means *bad* ash, 55 years is old enough for any tree, 16 inches is wide enough for any plank." I alluded to this exhibit in detail in last year's Report. In Class VII. there were several useful examples of creosoting, the Great Western Railway sending some sections of creosoted sleepers of home grown Oak, Beech, Elm, Larch and Scots Fir, taken from running lines and giving in each case the date when laid—a useful exhibit. The Hon. Mrs. Smyth took the Silver Medal and the Marquis of Bath the Bronze Medal. Class VIII. produced some excellent exhibits—Messrs James Constance and Sons took the Silver Medal with their excellent exhibit, which they add to and improve every year—the descriptive labels are very clear and the whole thing is an object lesson both to the Forester and the Turnery Trade. This exhibit and that of Mr. C. P. Ackers show most usefully to what good purpose the smaller stuff on an Estate can be put. The latter particularly, has made good use of material that would often be wasted. The Marquis of Bath took the Bronze Medal with a useful exhibit of home timber worked up for Estate purposes and Mr. C. P. Ackers took the third prize.

The competition for Wattle Hurdles and Shelters produced quite a good lot of entries. In Class IX. for ordinary sheep wattle hurdles,

Mr. J. H. Ismay was first, Mr. C. Furnell second, the Earl of Pembroke third, and Lord Alington fourth. In Class X. for wattle shelters, Lord Alington took the prize, Rural Industries being commended. Rural Industries sent some quite useful interlaced and wattle fencing in this and the previous Class, the method of joining the sections being ingenious.

Altogether a really good Forestry Section, with plenty of interest for the casual visitor as well as for all those who are interested in Forestry, either as an occupation, as part of their business, or as a science. It is satisfactory to see the Government giving real help where it can be of so much use.

The usual Pruning and Grafting Demonstrations on Fruit Trees during the Show were carried out by the Somerset Farm Institute at Cannington and were much appreciated. The Demonstration Area was particularly well laid out.

In the unavoidable absence of Professor H. A. Pritchard, Mr. Young acted as Judge and the Committee are grateful to him for his assistance.

XII.—AGRICULTURAL EDUCATION AND RESEARCH

AND

RURAL EDUCATION AND HANDICRAFTS.

By Messrs. H. M. Cundall and A. L. Hobhouse.

AGRICULTURAL EDUCATION AND RESEARCH.

SOMERSET FARM INSTITUTE, CANNINGTON.—AGRICULTURAL SECTION.—The Exhibit in this section was concentrated on work in connection with the Improvement of Grassland. A part of the Show Yard (100 ft. by 50 ft.) was railed off in January and small plots illustrating the effects of lime, phosphates and potash were laid out. A series showing the effects of nitrogenous manures, applied at intervals, was also put down to illustrate the New System of Grassland Management. A series of large turfs, 3 ft. square and smaller turfs, 1 ft. by 1½ ft., from lime and phosphatic and potash grassland demonstration plots in Somerset were let into the ground; thus many different soil types were represented.

These plots were taken from representative farms in the County of Somerset. The origin of these experiments is as follows: the Country Agricultural Organiser and his assistant have visited, at the request of the farmer himself, some three hundred farms during the last few years. On farms where a doubt existed as to the best type of fertilizer to apply, a series of plots were laid down. Approximately 75% of results have been obtained on these doubtful farms (number approx. 50), the plots on show at the Bath and West being taken from 12 of these farms in the following districts:—

<i>District.</i>					<i>Geological Formation.</i>
Bristol	..	..	..	..	{ Lower Lias.
					{ Red Marl.
					{ Rhaetic Beds.
Chilcompton	..	..	..	..	Red Marl.
Bridgwater	..	..	..	..	{ New Red Sandstone.
					{ Alluvium.
					{ Devonian.
Dulverton	..	..	..	..	Devonian.
Shepton Mallet	..	..	..	..	Lower Lias.
Taunton	..	..	..	..	New Red Sandstone.
Glastonbury	..	..	..	..	{ Alluvium (Peaty).
					{ Lower Lias.

Large turfs, showing the effect of mowing and close grazing on the eradication of rushes on marsh land at the Somerset Farm Institute were an additional interest.

On the stand benches further turfs were shown to exhibit the effects of phosphatic manure and close grazing—the close grazing being an important factor in improvement.

*General Results:—*The general results showed that phosphatic manures by themselves, when combined with good management, *i.e.*, close grazing, etc., give a definite improvement in the type of herbage and that Slag or Supers can be generally relied on to bring in a quick return, even on soils markedly short of lime.

Other matters dealt with included an exhibit of peas illustrating the effects of killing slugs by using a mixture of Powdered Kainit and Copper Sulphate. The mixture found to be effective and safe was 6 lbs. of Copper Sulphate per cwt. of finely powdered Kainit (Charlock Kainit) applied at 3 cwt. per acre of the mixture. It was found that if the slugs were hit by this mixture death quickly took place. Peas are particularly susceptible to being checked

during growth but if the slugs are tackled early the treatment will be very effective. The application of the mixture must be made at night, say two hours after dark or at dawn, when slugs are observed to be out feeding.

DAIRY SECTION.—An exhibition of cheese of the following varieties made by students at the Somerset Farm Institute:—Cheddar, Derby, Cheshire, Caerphilly and Soft Cheese; also Butter and Ornamental Butter. Charts showing the value of Milk as a food and also comparing separated and skimmed milk. Leaflets were distributed dealing with the propagation of Starter for cheesemaking and also dealing with the making of Cheddar and Caerphilly.

The whole display was well staged and the Cheese of different varieties and weights were of special interest.

POULTRY SECTION.—There was an excellent display of eggs, together with models of the breeds that produced them, tracing colour and class of egg back to the breed. Marketing of eggs was demonstrated by cases showing badly packed and well packed eggs, stressing grading and cleanliness. An exhibit of dressed poultry was staged—the work of students at the Somerset Farm Institute. Charts and foods were on view to indicate correct feeding, and models of houses, incubators and general appliances were also displayed.

Outside the stand a 100 Unit Somerset House—designed for the farmer who wished to rear chicks from the day-old stage to maturity, was erected. This 100 Unit House is becoming increasingly popular on account of its adaptability and its economy in use. An incubator house was also erected. Chickens were hatched in the latter during the days of the Show and a series of photos were exhibited to show the development of the embryo from first day to hatching.

HORTICULTURAL SECTION.—*Allotment Plot*.—A full sized 10 perch allotment plot planned and arranged on the scheme suggested by the Ministry of Agriculture in Leaflet No. 315. The plan provides for a portion of the land to be double dug each year and in the course of rotation the entire plot is deeply cultivated at the end of a period of three years. It also arranges for correct manuring and liming according to the crops which are to occupy each section of the plot. By such a plan it is possible to arrange for a succession of crops and continuous cropping and to estimate quantities of manure, seeds and lime.

The plot was very fully described by large signs, and plans were placed at convenient intervals for the information of the public.

Fruit Plot. This plot was arranged with the co-operation of the Long Ashton Research Station to provide illustrations and demonstration of fruit growing, both in farm orchards and in gardens.

The exhibits of trees were arranged to show :—(1) The development of a farm orchard tree from the first year until the time of planting in the orchard. (2) Recommended methods of staking and guarding orchard trees. (3) Methods of staking and guarding often adopted, but which cannot be recommended on account of cost or of insecurity of the work. (4) Methods of pruning farm orchard and garden trees. (5) Methods of growing fruit as cordon trees. (6) Currant and Gooseberry bushes well grown in comparison with those badly attended to. (7) Pests and diseases of Currant and Gooseberry bushes. (8) Large trees were provided on which demonstrations of pruning and grafting were given at intervals during the Show.

HORTICULTURAL EXHIBIT IN THE AGRICULTURAL EDUCATION SHED.

Some fifty feet of staging was occupied by the exhibit, which included :—

Farm Orchardng.—Model orchards to illustrate good and bad methods of orchard management. This exhibit was labelled with large charts.

Models of good and bad methods of grafting, actual grafts being used. Tree tying and pruning were shown by prepared models. An exhibit of fruit showing the influence of rootstocks on trees grafted on them. Exhibits of the most prevalent pests and diseases of the season. Exhibit of approved spraying materials in concentrated form and at correct dilutions for spraying. Charts and photographs illustrating the work, value and methods of spraying. Charts informing visitors of the facilities afforded by the Somerset County Council for advisory assistance and instruction in Horticulture, Farm Orchardng and Cider Making.

THE UNIVERSITY, BRISTOL.—DEPARTMENT OF AGRICULTURE AND HORTICULTURE. The objects in the somewhat extensive exhibit sent by this department may be conveniently classified as follows :—

- (1) Grassland Experiments conducted in conjunction with the Society.

- (2) Bracken Eradication Experiments conducted in conjunction with the Society.
- (3) Lime Grinding conducted in conjunction with the Society.
- (4) The Liming of Acid Arable Land.
- (5) Soil Acidity.
- (6) Sugar Beet.
- (7) Strains of Red Clover.
- (8) Dairy Bacteriology.

(1) *Grassland Experiments.* During the season 1922-23, the Bath and West and Southern Counties Experiments Committee in conjunction with this department, initiated a series of experiments in order to test the relative values of certain phosphatic manures used alone or together with lime on acid pastures in the West of England. Progress reports have appeared annually in the Society's Journal, and in the 1926-27 edition an article was published summarising the results obtained and describing detailed investigations of some of the effects of these fertilisers on the soil.* A final report on these experiments appears elsewhere in this Journal of the Society. Representative turfs from the experimental plots were displayed in the Agricultural Education Pavilion and these turfs created an immense amount of interest amongst visitors to the Show. An inspection of these turfs clearly demonstrated the great value of phosphatic manures in improving rough acid pastures. All the manures used have produced excellent results. Of the phosphatic manures under experiment, ground mineral phosphate was found to be somewhat slower in action than slag and superphosphate, but economically it is probably the best phosphatic fertiliser to use at the present time, as will be seen from a glance at the table below :—

<i>Fertiliser used.</i>	<i>Quantity per acre.</i>	<i>Cost per acre.</i>
Superphosphate (35%)	8½ cwts.	30/-
Basic Slag (30%)	10 cwts.	30/-
Ground Mineral Phosphate (50%)	5 cwts.	13/-

It must be pointed out, however, that whilst it is possible to calculate the actual cost of the fertiliser applied, it is, with our present knowledge, impossible to assess in terms of money the improvement made in pasture by that fertiliser.

* Ling, A. W., "Some Effects of Phosphatic Manures and Ground Lime on Acid Pastures." *Journal Bath & West Soc.* Sixth Series, Vol. I., 1926-27.

(2) *Bracken Eradication Experiments.* Turfs were shown from the plots on which these experiments are being conducted. These experiments have proved conclusively that bracken may be almost completely eradicated by systematic cutting in July together with the application of a suitable phosphatic fertiliser.

(3) *Lime Grinding Experiments.* These experiments, which are being carried out in conjunction with the Bath and West Society and which are still in progress, were started in 1925 in order to explore the possibilities of grinding local limestones for agricultural purposes. The exhibits included many of the local limestones and the ground product together with a series of pots containing a very acid soil. Barley had been planted in this soil and ground limestone of varying degrees of fineness applied. From the growth of the barley at the time of the Show, it appeared that the best results are obtained when the lime is finely ground; in any case it should pass through a sieve having 60 holes to the inch.

(4) *Liming of Arable Land.* Sheaves of barley (1926 crop) were shown from an acid arable field where the soil is a light sand, in Worcestershire. Lime had been applied to this field in 1924 at the following rates: 1 ton, 3 tons, and 5 tons per acre. Where no lime had been applied, no barley was harvested—the crop having failed completely. A very light crop was grown where 1 ton of lime was used, but excellent crops were secured with the heavier dressings of lime.

(5) *Soil Acidity.* Under this section the various field and laboratory tests for soil acidity were demonstrated together with a series of soils, all having exactly the same appearance but which varied with reference to lime content from “sweet” to very acid.

(6) *Sugar Beet. (a) Pot Experiments.* The pots exhibited showed, in a striking manner the effects of omitting any one of the essential plant foods (nitrogen, potassium and phosphoric acid) from the complete nutrient solution with which the sugar beet had been fed. From the pots it was clear that the sugar beet plant cannot successfully get past the “seed leaf” stage without the aid of nitrogen and phosphoric acid.

(b) *The Effect of Soil on the Size, Shape and Sugar Content of Sugar Beet.* Samples of beet taken from plots treated in exactly the same manner with regard to cultivation and manuring, but grown on different types of soil (1926) were exhibited. A study of the exhibit led one to the conclusion that it is very difficult to lay down hard and fast rules with reference to the most suitable

soil for sugar beet growing and that each soil must be considered on its own merits.

(c) *The Factory Process of the Extraction of Sugar from Sugar Beet.* This process was illustrated by means of diagrams, photographs and samples of the various juices and by-products taken at the different stations in a sugar beet factory.

(7) *Strains of Red Clover.* The persistency of some of the strains of Red Clover was illustrated by means of specimen clover plants in pots. During the course of the experiments (from which the pots for the Show were taken) it has been found that whilst most of the "Broad Red" Clovers die out within two years, the Late Flowering Red Clovers persist three or more years. The "Marl Grass" Clovers were also found to be persistent.

(8) *Strains of Grasses.* The habits of growth and general appearance of some of the modern strains of rye grasses and cocks-foots were demonstrated by means of specimens of these plants growing in pots.

(9) *Dairy Bacteriology.* The object of the Clean Milk Exhibit was to illustrate to milk producers that there is more in the production of clean milk than the washing of cows and use of covered buckets; that sterilisation of utensils and the way the milk is handled after it has left the cow, are equally, if not more important in deciding the keeping quality of the milk.

To illustrate this the following plates were exhibited :—

- (1) Three plates showing the differences of bacterial content of churns, unwashed, washed and steamed. Plates showing contamination from dirty cooler tap.
- (2) Several plates illustrating the differences of the atmosphere of clean and dirty cowsheds, etc.; that *B.coli* can be carried in the air, should dung be allowed to dry.

Two plates, exposed in the same cowshed, illustrated the increased bacterial content of the air, when hay or litter is moved, pointing out the inadvisability of moving hay or litter prior to or during milking.

The points emphasised were :—

- (1) Sterilise utensils.
- (2) Keep sheds as clean as possible.
- (3) Keep the milk covered.
- (4) Avoid having litter and hay present during milking.

Sediment pads were also exhibited illustrating the differences in the amount of visible dirt in milk at farms where the following practices are adopted :—

A.	B.	C.
Cows washed.	Cows washed.	Cows not washed.
„ clipped.	„ not clipped.	„ „ clipped.
Covered buckets.	Covered buckets.	Open buckets used.

Apparatus was present to show the methods of analysis adopted in the Laboratory.

LONG ASHTON RESEARCH STATION. The exhibit of the Station illustrated points in connection with investigations which are in progress relating to the following subjects.

1. *The Normal Growth Cycle of the Healthy Strawberry Plant.* The exhibit consisted mainly of a series of photographs and charts together with a few specimens of living plants.

The chief points to which attention was drawn were as follows :

a. The annual growth cycle of the strawberry plant up to the age of two years.

It was clearly shown that there is a definite periodicity of crown and root growth, crown growth being relatively more active than root growth during spring and vice versa during autumn.

b. The origin of new root growth and the distribution of roots in the soil, and the bearing of these points on cultural treatments.

New roots arise from points above the old root system and thus soil should not be continuously drawn away from the crowns of plants.

c. The anatomy of the root system at various times during the life cycle.

d. The effects of time of planting on the subsequent performance of the plant.

The advantages of July and August planting as opposed to later plantings were clearly demonstrated.

e. The effects of various methods of planting—depth of planting, trimming of root systems, etc.

2. *Strawberry Pathology.* This section of the exhibit was arranged to illustrate the various types of "failure" plants which are prevalent in cases of unsuccessful strawberry plantations and to show various points relating to the production and propagation of such plants.

Photographs and specimen plants were exhibited which showed the characters by which various pathological conditions may be recognised—e.g., "red" plant, "cauliflower" disease, aphid damage, cultural damage, waterlogging effects, etc.

A chart was shown to illustrate the relationship existing between "strain" and "red" plant disease.

3. *Seasonal Factors Influencing the Subsequent Cropping of Apple Trees.* The object of this section of the exhibit was to draw attention to the point that certain seasonal data appear to be of use in attempting to forecast the apple crop of the following season.

The connection between the crops borne the previous year and the rainfall during the months of June, July and August, and the effect of these two factors on the following year's crop, was illustrated by means of a model. The efficacy of the model depends on the fact that a heavy crop one year makes a heavy one the next year unlikely, and that a dry summer makes a heavy one probable. The data from which the model was made was obtained from the south and south western district of England and applies only to apples. Forecasts only apply on the large scale and not to particular orchards, and are liable to be interfered with by excessive aphid attacks and frost or long continued cold at setting time.

The full paper is published in the *Journal of Pomology and Horticultural Science*, Vol. V., No. 3, July, 1926, and in the *Annual Report of the Agricultural Research Station, Long Ashton, 1927*.

4. *The Time of Application of Tar Distillate Washes in Relation to Bud Damage.* The exhibit illustrated some results of spraying experiments carried out on plum trees and black currant bushes at Long Ashton during the winter 1924-25. The object of the experiments was to discover how late in the dormant season it was safe to apply tar distillate washes.

The following points were demonstrated :

- a. The nature of the damage produced to plum and black currant buds by late applications.
- b. The condition of buds in the "safe" and "danger" periods.

- c. The bad effects of using stronger concentrations of the washes near the end of the dormant season.
- d. The greater susceptibility to damage of plum buds than black currant buds.

5. *Willow Culture and the Utilisation of the Willow Crop.* The willow exhibit was designed to illustrate to willow growers a wide range of problems affecting the willow growing industry and had special reference to the needs of the local grower.

Fifty-two varieties of willows—comprising all the commercial varieties now in cultivation in this country—as growing plants and as dried matured rod specimens of the same varieties grown in 1926 in the Station's trial beds were shown. This display served to demonstrate the degree of suitability of particular varieties to soil conditions and for the making of different classes of baskets.

The results of scientific investigations carried out at the Research Station on the manurial requirements of the willow crop, methods of preparing willow rods for use, loss of weight due to peeling, fungus and insect pests and on the raising of new varieties, were shown by means of photographs and prepared specimens.

Soil conditions favourable to the cultivation of the basket willow crop were demonstrated by means of land maps of the Somerset willow growing area.

MINISTRY OF AGRICULTURE AND FISHERIES.

Demonstrations were given by the Ministry of Agriculture for the purpose of bringing improved methods to the notice of home producers. The importance of Standardisation as the first principle of Modern Commerce was emphasised throughout the demonstrations. Illustrations were given in marketing eggs, poultry, fruit, pigs and pig products.

RURAL EDUCATION AND HANDICRAFTS.

The building for this section was filled by exhibits from Schools under the Somerset County Education Committee and the Bath Education Committee.

SOMERSET COUNTY EDUCATION COMMITTEE. A very comprehensive exhibit of educational handwork was staged by the Education Committee, mostly from elementary schools in the County. It was representative of all phases of practical instruction and included work in gardening, manual training (woodwork and metal work),

plumbing, practical science, wood-carving, mining science, leather-work, basketry, relief maps, cardboard modelling, pewter work, embroidery, brushwork, drawing, etc.

The woodwork exhibit included many articles of use in farming, gardening, school sports, bee-keeping, and poultry-keeping, subjects which are now taught in many of the schools. A particularly fine exhibit of home-made furniture, displaying excellent craftsmanship, was received from the Glastonbury Evening School.

Some good maps, plans and drawings illustrated a course of mining science taken at the Radstock Council School, and a striking exhibit of metal work, all done by boys under 14 years of age, came from Radstock and Midsomer Norton Manual Training Centres.

Amongst the most noteworthy exhibits in the educational handwork section were some fine cardboard modelling from West Crewkerne, Bagley Close and Langport Council Schools, basket and leather work from Dowlish Wake C.E. School and Brislington C.E. Girls' School, a collection of articles in leather and pewter from Blackford Evening School, and wool rugs made at Charlton Horethorne C.E. School. Relief maps were sent from Langport Council School, Chewton Mendip C.E. School and Wembdon C.E. School. A collection of articles made by the infants at the Chard Tatworth Council School attracted attention.

An exhibit of domestic cookery including examples of cheap dinners made by the scholars, and fruit, vegetables, etc., preserved in various ways, was shown.

Technical schools were represented by examples of wood-carving and plumbing from Bridgwater.

There was an exhibit of school gardening work which showed how this subject is closely related to science, drawing, practical arithmetic, composition, reading and simple research work.

BATH EDUCATION AUTHORITY. An interesting and representative exhibit of school work organised by the Education Authority was arranged in the following sections:—Art, Handicraft, Domestic Subjects, History and Geography, Technical and Scientific Hobbies.

The Art section consisted of work in free-expression, crayon, pencil and water-colour, etc. These exhibits were sub-divided to show clearly the type of art activities in **Infants'**, **Junior**, **Senior**, **Central** and **Secondary Schools**, and in the **School of Art** respectively.

The various examples showed the development of artistic taste and ability during the school life.

The Handicraft section comprised work done by Infants', Junior and Senior Schools, and also advanced woodwork and metalwork handicraft from the Manual Instruction Centres, the Central School and the Secondary Schools. Specimens in raffia, cane, leather, paper, wood and metal were shown. The various articles displayed considerable ingenuity as well as good craftsmanship.

In the domestic subjects section was included a comprehensive exhibit of cookery, laundry work, housewifery, needlework, and dressmaking, the more advanced work being the product of the Training College of Domestic Subjects.

The Historical and Geographical portion consisted of maps; plans and models of buildings; apparatus for the teaching of geography; relief maps (showing local physical features); clay models; historical pictures, drawings and models; costumes and objects representing periods. This was a very varied and pleasing section.

The Technical and Scientific Hobbies section was of unusual interest, inasmuch as it included work which clearly revealed the pupils unaided efforts. Pieces of scientific apparatus such as electromagnets, galvanometers, induction coils, and parts of wireless sets, along with model boats, were included.

From the Authority's Special Mental Defective School such objects as mats, baskets, stools, pieces of needlework were exhibited, together with a specimen of cloth woven at the School and an example of boot repairing.

DISPLAY OF PHYSICAL TRAINING AND COUNTRY DANCES.

On the last day of the Show a display of Physical Training and Country Dances was given by six hundred children of the Elementary Schools in the County of Somerset and in the City of Bath. Physical Training and Dancing now form part of the curriculum of the public elementary schools, and the demonstration showed the satisfactory extent to which they are carried out in Somerset and Bath.

SOMERSET RURAL COMMUNITY COUNCIL.

The fundamental aim of this Society is to secure an amelioration of life in rural districts, to create conditions which will make it at least

as attractive as life in towns, and thus arrest the continuous migration from rural areas.

One of the chief endeavours in this direction is to assist rural craftsmen in their various industries.

Successful demonstrations of these industries were given. They included a potter at his wheel, a weaver with a loom, bar and hurdle making, willow basket and chair making, thatching, chip carving and embossed leather work.

OLD AGRICULTURAL IMPLEMENTS.

A unique collection of implements used in farming more than a hundred years ago was arranged by Mr. Martineau. It created considerable interest.

In conclusion we desire to offer our best thanks to the Officials of the various Educational Bodies and Institutions for their willing co-operation in arranging the Show, and for their assistance in the compilation of the report.

XIII.—THE EXHIBITION OF CIDER AT BATH.

By E. W. Farwell, Steward.

The entries at the Bath Exhibition in 1927 numbered 70 as compared with 25 at Watford in 1926, and 41 at Maidstone in 1925.

The classes, as usual, were open to growers or makers, and were as follows :—

CIDER MADE IN 1926.	Entries.
Class 234—Cask of cider by an exhibitor who has not previously taken a first prize in any public exhibition	9
Class 235—Cask of cider of a specific gravity not exceeding 1.015 at 60 deg. Fahr.	11
Class 236—12 bottles of cider, ditto	14
Class 237—Cask of cider	14
Class 238—12 bottles of cider	17
CIDER MADE PREVIOUS TO 1926.	
Class 239—12 bottles of cider	5
	<hr/>
	70

Samples from each exhibit were submitted to Dr. J. A. Voelcker, M.A., F.I.C., for analysis, and particulars of the result are set out in the accompanying table, together with the specific gravity of the juice as supplied by the exhibitors. There were two absent entries, and eight were disqualified for containing preservatives contrary to the Regulations of the Ministry of Health.

Mr. E. P. West, of the University Research Station, Long Ashton, was the judge appointed by the Society, and he carried out his duties on the first day of the Show.

It was most encouraging to see such a large number of entries, which constitute a record since the present system of classification was adopted. On the other hand the quality was disappointing, and there were very few ciders of any outstanding merit.

The first class was well supported, and, bearing in mind that it was only open to novices, the quality was fair. There was very little difficulty in finding the best cider which was made of Kingston Black.

The dry cider in cask was of very poor merit, with the taste of vinegar very prominent, and there must be considerable improvement in its manufacture before it can command any market. The winning ciders were made of mixed fruit.

Only eight of the entries in the dry cider in bottle could compete in this class, and the first prize was soon awarded for one made of Yarlington Mill, Royal and Whip Jersey and Cap of Liberty.

In the open cask class, though none were of high merit, most of the ciders were of very even quality, the winning cider being made of mixed fruit.

The open bottle class was the best in the Show as regards both numbers and quality, and all the seven entries which received an award of any sort were of very even merit. The first and second ciders were made of Kingston Black.

Although the class for old cider was not well filled it was interesting as the ciders were of differing character. They were all made in 1925, the first and third being composed of Kingston Black, and the second of mixed fruit.

The following are the Judge's comments on the exhibits :—

Class No. 234. Novice Class, Cask Cider made in 1926.—With the exception of the First Prize Cider the others were of a low standard.

Class No. 235. Cask Cider of a Specific Gravity not exceeding 1.015.—Not by any means a good class; the ciders were very variable, some on the “acetic” side, and none of outstanding merit.

Class No. 236. Bottled Cider made in 1926 of a Specific Gravity not exceeding 1.015.—The first prize cider was outstanding and an easy winner. Several of the other exhibits were “clean,” and on the whole the Class may be termed a fairly good one.

Class No. 237. Draught Cider made in 1926.—There was good level competition in this Class and the majority of the Ciders were good.

Class No. 238. Bottled Cider made in 1926.—The strongest of all the Classes and the most difficult one to judge on account of the different types exhibited. The First and Second Prize Ciders were exceptionally good, but of two distinct types.

Class No. 239. Bottled Cider made previous to 1926.—Only four entries, and not a good cider amongst them.

General Remarks.—Classes 235 and 236 clearly showed how difficult it is to obtain a really good “dry” palatable cider. In making my awards I endeavoured to give them to Ciders that would be selected by the “majority” and not by the “minority.”

RESULTS OF ANALYSIS.

<i>Class.</i>	<i>No.</i>	<i>Sp. Gr.</i>	<i>Solids.</i>	<i>Percentage of Alcohol.</i>	<i>Acid.</i>	<i>Sp. Gr. of Juice.</i>	<i>Award.</i>
234	1	1.006	3.50	5.60	.50		
	2	1.018	5.72	3.25	.87		
	3	1.009	4.95	8.10	.57		
	4	1.024	7.37	4.25	.80		3rd
	5	1.027	8.45	5.00	.87		
	6	1.021	6.37	3.55	.73	1.055	R
	7	1.030	8.50	3.00	.63	1.065	1st
	8	1.023	6.97	3.35	.67	1.060	2nd
	9	1.025	8.17	5.60	.67		
235	10	1.010	4.27	4.95	.50	1.050	2nd
	11	1.015	5.37	4.90	.57	1.055	1st
	12	1.015	5.45	4.90	.63	1.054	3rd
	13	1.016	5.57	4.50	.50	1.048	
	14	1.013	5.25	5.60	.80	1.060	
	15	1.015	5.60	5.20	.80	1.055	
	16	1.013	4.70	4.10	.43	1.049	
	17	1.011	4.57	5.00	.57	1.053	
	18	1.015	5.30	4.25	.77	1.060	
	19	1.015	5.77	5.10	.83	1.065	R
	20	1.017	5.65	3.90	.57	1.060	

RESULTS OF ANALYSIS—continued.

<i>Class.</i>	<i>No.</i>	<i>Sp. Gr.</i>	<i>Solids.</i>	<i>Percentage of Alcohol.</i>	<i>Acid.</i>	<i>Sp. Gr. of Juice.</i>	<i>Award.</i>
236	21	1.011	4.25	4.60	.70	1.050	
	22	1.012	4.97	5.50	.60	1.055	R
	23	1.015	5.50	5.10	.63	1.052	1st
	26	1.013	5.12	5.60	.70	1.060	
	27	1.013	5.40	5.90	.87	1.055	2nd
	28	1.013	5.02	5.00	.33		
	29	1.014	5.45	4.40	.40	1.052	
	30	1.011	4.75	5.80	.67	1.053	3rd
	31	1.015	5.75	4.80	.80	1.065	
	32	1.015	5.40	4.00	.73	1.055	
	33	1.015	5.27	4.50	.77	1.060	V.H.C.
	34	1.012	4.70	5.20	.60	1.060	
237	35	1.020	6.25	3.40	.43	1.048	R
	36	1.026	7.65	3.10	.50	1.056	2nd
	37	1.029	8.67	3.75	.73	1.057	
	38	1.026	7.52	3.35	.47	1.051	V.H.C.
	39	1.024	7.40	4.30	.73	1.060	
	40	1.023	7.40	4.60	.70	1.068	
	41	1.036	9.70	2.02	.60	1.054	H.C.
	42	1.030	8.60	3.20	.67	1.060	3rd
	43	1.020	6.37	3.65	.73	1.065	
	44	1.023	7.02	3.60	.70	1.055	
	45	1.025	8.40	5.90	.57		
	46	1.028	8.20	3.50	.67	1.058	1st
238	47	1.021	6.65	4.25	.63	1.055	
	48	1.030	8.77	3.98	.67	1.060	2nd
	49	1.022	6.95	3.95	.47		C.
	50	1.025	7.85	4.25	.77	1.060	C.
	51	1.025	7.52	3.70	.73	1.061	R
	52	1.025	7.77	4.20	.63	1.063	
	53	1.026	7.85	4.10	.83	1.060	C.
	54	1.025	7.60	3.90	.73	1.068	
	55	1.013	4.90	4.50	.40		
	56	1.012	4.82	5.00	.43	1.051	
	57	1.005	3.07	5.40	.60	1.052	
	58	1.029	8.10	2.60	.57	1.054	3rd
	59	1.037	10.32	3.10	.73	1.065	1st
	60	1.029	8.12	2.90	.73	1.060	
	61	1.024	7.10	3.10	.73	1.055	
	62	1.034	10.15	4.60	.77		
	63	1.026	7.72	3.85	.80	1.074	
239	64	1.020	8.27	3.00	.40	1.058	R.
	65	1.027	8.15	3.75	.57	1.067	3rd
	66	1.025	7.22	3.10	.73	1.058	1st
	67	1.026	7.75	3.80	.80	1.056	2nd
	68	1.046	12.70	3.76	.90		

XIV.—SMALL HOLDINGS COMPETITION. CONFINED TO THE COUNTY OF SOMERSET.

By A. H. Chew (Judge).

I have much pleasure in submitting my award of prizes in the Somerset County Council Small Holdings Competition. In making my decision I have carefully considered the capabilities of the various holdings, and have made my awards from a commercial and profit-making standpoint.

All the holdings submitted for my inspection are well farmed, well managed, very clean and tidy and mostly well fenced, and I congratulate all the Competitors upon the way in which they manage their farms. The dairy cows are especially good, but I should like to have seen better bulls used as the cows I saw deserve to be mated with really good males. In my opinion the man who rears his own calves to keep his dairy herd up is the man most likely to succeed, and in order to do this it is necessary to produce the best stock. I was very disappointed to find not one Competitor who kept a milk record, as the keeping of a record is most essential in the good management of a dairy herd.

Generally speaking, the pigs were of a fairly good stamp, but I should have been better pleased to have seen more breeding sows and litters on the holdings. On a few farms the poultry was fairly good, but on others very poor indeed; I am sure a good laying strain of hens or ducks well managed are a paying side line upon any farm. I was surprised to find only one Competitor who kept bees, and here again I am sure a few pounds can be got with little outlay or trouble; they are most useful little creatures in a fruit-growing district.

The round of inspection provided several episodes which demonstrated the spirit of family co-operation and self-help which plays such an important part in making Small Holdings a success. In one case I saw the three girls of a competing Smallholder, the oldest not more than 16, return from school, change into suitable attire, and tackle the milking of the cows in a manner that would have been creditable in any clean milking competition. On questioning one of the three I learnt that she had started milking at the age of seven, and it was interesting to watch the workmanlike manner in which her brother, a boy of eight, went before the girl milkers with a wet cloth and wiped the teats and udders of the cows. This I venture to say is the way to train future Smallholders. In another instance a Competitor informed me that he took his fat cattle

to market, but in consequence of a buyer's ring he got such a poor price offered that he determined to try his luck at supplying the consumer direct. Having secured a licence for slaughtering he turned butcher, kills his own beast and sells his meat. The result proved to be so satisfactory that the man estimated that in the end he made £7 apiece more on the beast than he would have done had he sold them at the price he was offered in the market. It is enterprise of this character showing itself in one direction or another which enables Smallholders to overcome their difficulties and pave the way to success.

I most heartily congratulate all the prize winners in Class 1, the competition being most keen ; I had a very hard task to divide the first three. After taking all points into consideration, I have awarded Mr. R. Shire the first prize, his cattle being exceptionally good, his yearling heifers to come in for the dairy bid fair to turn out good milkers. His breeding sows and store pigs were a very good lot, the cropping of his arable land in good rotation and first-class cultivation. He has a fine stock of hens which look like good egg producers. Mr. Rossiter comes in a good second, having some very fine fat cattle, capital lot of pigs, and the cropping and cultivation of his arable land is perfect. Mr. Mitchell wins the third prize, being only a few points below the second prize winner, his holding is a very great credit to him, stock all very good, cropping and cultivation of his arable land of the best, fences good and premises neat and tidy.

In Class 2 there are only two entries, the Competitors are well worthy of the prizes, as their holdings are clean and well managed.

Class 3, another small entry, Mr. E. A. Wilkins wins the first handsomely, his management being of the first order, his gardens and glass-houses are well cropped and very clean. I was sorry to see he had sustained a heavy loss, all his Black Currants being cut off with the frost. Mr. A. R. Tobias well wins the second prize, his idea of mixing poultry with market gardening is a splendid plan, moving his pens forward and following up behind with vegetables on the tainted ground he gets his ground sweet again for his laying hen pens.

My work of judging has been a pleasant task. I thank all the Competitors for their cordial reception. Especially I wish to thank Mr. Toomer, Major Cooper and Major Parks for conveying me in their cars from place to place with the least possible loss of time, and I also thank Major Parks and Major Cooper who so very kindly provided me with bed and food.

The list of Awards will be found on p. cxvi. of the Appendix.

XV.—ANNUAL REPORT UPON THE SOCIETY'S GENERAL OPERATIONS.

By F. H. Storr.

The Annual Meeting of Members was held on Thursday, May 26th, in the Council Pavilion in the Show Ground, Bath. The President, H.R.H. The Duke of York, being absent, the Deputy-President, The Most Hon. The Marquis of Bath, took the chair, and among members present were:—Messrs. H. M. Cundall, H. B. Napier, and R. Neville-Grenville (Vice-Presidents), Mrs. Jervoise, Sir F. Beauchamp, Sir C. Miles, Col. E. Lewis, Major E. W. Farwell, Major A. H. Gibbs, Major F. H. T. Jervoise, Capt. W. Best, Dr. Curd, J. E. Daw, R. Gynn, T. C. Hoskins, A. L. Hobhouse, M. James, S. J. Knight, C. R. Knollys, G. E. Lansdown, R. V. Le Bas, G. Lipscomb, C. M. F. Luttrell, G. Martyn, G. Nichols, T. H. Pearce, E. Pritchard, J. W. Pullin, C. M. Roberts, E. G. F. Walker, and A. R. White.

The Minutes of the last Annual General Meeting having been read and confirmed, it was unanimously resolved on the motion of the Chairman, seconded by Mr. C. R. Knollys, that Lieut.-Col. The Lord Wynford, D.S.O., be elected President of the Society for the ensuing year.

On the motion of Mr. A. R. White, seconded by Major A. H. Gibbs, Major The Lord Digby, D.S.O., M.C., was elected a Vice-President of the Society.

Mr. C. M. Roberts proposed, and Col. E. Lewis seconded, the motion that the gentlemen named on p. 3 be elected members of Council for the years 1927-1929. The motion was adopted unanimously.

The Chairman proposed that the Annual Report as amended should be approved and printed in the Society's Journal. He hoped that on some future occasion it might be possible to welcome H.R.H. The Duke of York to one of the Society's Shows. They had to thank the City of Bath and the Local Committee for a most cordial reception, and the Mural Tablet Committee of the City for their gracious act in permanently placing on record the fact that Edmund Rack was a resident of Bath. He was sure that there would never be felt any regret for the step taken by the Somerset County Agricultural Association in amalgamating with

the Bath and West. Mr. G. Lipscomb seconded the motion, and the following report was approved :—

“The City of Bath, the birthplace of the Bath and West and Southern Counties Society, has claimed its right to be the site of the celebration of the 150th anniversary of the founding of the Society, and your Council take this opportunity of expressing their appreciation of the efforts of the Mayor and Corporation and of the Bath Local Committee to make the celebration worthy of the City and of the Society itself. Few institutions, even in this country of old-established Associations for the public benefit can claim such an unbroken record of useful service, and there is every reason to believe that this occasion will prove merely a milestone on the road leading to further beneficent activities. The founders of the Society were among the first to appreciate the need of extending the methods introduced by Jethro Tull, Lord Townshend, Thomas Coke and others to the whole of agricultural England, while they were also alive to the fact that scientific education was the only foundation for progress, not only in agriculture, but in the whole range of industry and commerce. This is still the policy pursued in the general conduct of the Society and especially at its Annual Exhibitions.

It is a matter of great regret that his Imperial duties have not given the President, H.R.H. The Duke of York, K.G., any opportunity of being present at the Bath Meeting, especially as the Show will be notable in many ways. Your Council desire to place on record its great appreciation of the honour which H.R.H. has conferred on the Society by accepting the position. The number of entries in the stock and produce classes is higher than at any previous exhibition, while the importance of the Bath and West Show is being more fully recognised each year by public authorities, both agricultural and educational. The Ministry of Agriculture and Fisheries and six other national and public institutions have important exhibits in the Show Yard, among which perhaps those from three institutions dealing with Forestry may be specially mentioned because of the increasing importance attached to this branch of agriculture. A building has also been devoted to an exhibition of old agricultural implements and farm house utensils, which would illustrate to some extent the great progress that has been made in these respects during the life-time of the Society. Finally, the 1927 Show will be remembered by the action of the Mural Tablet Committee of the Bath Corporation in unveiling on the house where he lived in Bath a tablet to the memory of

Edmund Rack, the founder. No more appropriate or gratifying action could have been taken by the City Authorities to commemorate this anniversary.

In the course of its history the Society has before now seen the advisability of agreeing to the union of a similar Association, where the objects pursued, and the area of country covered, were sufficiently close to lead to no important divergence of views. In the autumn of last year the Society were approached by the Somerset County Agricultural Association with a view to amalgamation. In this case the relations between the two Societies had always been of the most cordial description, and indeed, many persons had served on both the governing bodies, so that there was no hesitation in agreeing to the suggestion put forward. At a special meeting of Council, held on the 17th December, 1926, the terms of amalgamation were unanimously approved, and your Council extended a hearty welcome to all members of the Association who wished to become members of what might well be termed the parent Society. This has brought with it a considerable increase of membership, while in addition, no fewer than 116 other members have been elected during the present year. This brings the total membership to nearly 1,300, and the thanks of the Society are due to those members of Council who have been chiefly responsible for this satisfactory result.

The Society have to deplore the loss during the last year of two valued supporters, both of them Vice-Presidents of the Society, and both living in the home county of Somerset. Mr. H. J. Badcock was for many years the treasurer of the Society, while Mr. C. C. Tudway had charge on several occasions of the horticultural exhibition. Besides this they were among the firmest friends of the Society, and from this as from more personal reasons their loss will be particularly felt by all members who came into direct touch with them. Since this report has been prepared a most serious loss has been experienced by the Society. Prof. J. Penberthy died suddenly on the day before the opening of the Bath Meeting. For twenty years he had been the veterinary inspector, and for much longer a member and firm supporter. His loss will be severely felt not only by this Society but by all those to whom he was known as eminent in his profession.

Since the last Annual Report was presented a cordial invitation has been received from the Town of Dorchester to hold the 1928 Meeting in that town. A site was inspected and approved which should prove one of the best ever offered to the Society, and the

invitation was unanimously accepted. Your Council regret to have to report that the Watford Show, excellent though it was so far as exhibits of stock and produce were concerned, resulted in a large financial loss. The appeal of the Treasury against the decision of the Special Commissioners of Income Tax confirming the exemption of Agricultural Societies from the payment of tax on securities has not yet been decided. Your Council are still acting in this matter in conjunction with the Royal Lancashire and the Yorkshire Societies.

An interim report on the question of agricultural lime has been received, from which it would appear that the harder mountain limestones cannot be crushed to the required fineness at one operation, so that their use is not economical. Further points brought out in the Society's demonstration plots have been put on record in Mr. A. W. Ling's article in the current number of the Journal.

It will be generally known that the Royal Veterinary College are appealing for funds to rebuild the College and to extend their work. In view of the great usefulness of the College to the agricultural community, your Council have recommended that a grant of two hundred guineas be made to the fund being raised for the purpose. With regard to the other societies and institutions on the governing bodies of which this Society is represented, it has not been necessary to make any change of representatives during the year under review.

Your Council unanimously recommend that Lt.-Col. The Lord Wynford, D.S.O., be elected as President for the coming year, and that Major The Lord Digby, D.S.O., M.C., be elected a Vice-President of the Society. They further recommend that the gentlemen named on the agenda paper be elected as members of Council for the years 1927-29. They have to report a minor alteration in the list of Committees, the Science and Art and the Experiments and Education Committees having been amalgamated. Many of the matters brought before these two committees were of the same nature, and the amalgamation will facilitate the consideration of the work to be done."

Mr. G. Nichols, in proposing that the thanks of the Society be presented to the Mayor of Bath and the Local Committee, claimed some experience of the personal effort needed and the amount of work to be done in preparing for the reception of a large agricultural show. He could congratulate Bath and the Society in their choice of a local Secretary. He did not know if the Mayor

had been selected with a special view to the visit of the Bath and West, but no happier choice could have been made. Mr. E. Pritchard seconded the motion, which was adopted with acclamation. On the motion of Mr. G. Martyn, seconded by Major F. H. T. Jervoise, the thanks of the Society were presented to those gentlemen who had kindly acted as judges in the various departments of the Show.

Sir Frank Beauchamp moved that the thanks of the Society be presented to H.R.H. The Duke of York, K.G., for accepting the office of President of the Society during the past year. His acceptance showed what a keen interest the Royal Family took in the Society, and he had no doubt that H.R.H. also regretted his inability to be present. Dr. Curd seconded the motion, which was carried unanimously.

Mr. E. Walker proposed "that this Meeting desires the Council to impress upon the Ministry of Agriculture the necessity of formulating regulations dealing with the import of Continental Bacon, so as to provide that the feet of the pigs remain attached and cured with the bacon, so that these can be examined for lesions of foot and mouth disease." He urged that it had been proved that the virus of the disease could live for as long as 70 days in the marrow of an infected animal after slaughter, and that continental exporters were now removing the feet from bacon carcasses to conceal the evidences of disease. The motion was seconded by Sir Charles Miles, and was adopted.

XVI.—THE NATIONAL FRUIT AND CIDER INSTITUTE.

INTRODUCTION.

Following the practice of previous years, this Report deals primarily with the work of the Long Ashton Research Station (The National Fruit and Cider Institute). For reasons given in the last Annual Report reference is made also in this introductory section of the Report to the activities of the Berkeley Square Agricultural Advisory Centre and the Campden Research Station which together with the Long Ashton Station constitute the Agricultural and Horticultural Department of the University of Bristol. The advisory section of this Report deals with work under that head carried out from both Long Ashton and Berkeley Square. A more detailed account of the work of the Campden Station is to be published elsewhere.

The table of contents of this Report indicates the contributions of the respective members of the research and advisory members of the staff of the Department. The important contribution to the successful working of the Department made by the members of the administrative, assistant and labour staffs cannot be recorded in that way. Hence the opportunity is taken here of acknowledging collectively the valuable and willing help which has been given by all grades in their respective capacities.

LONG ASHTON RESEARCH STATION.

In contrast to the two preceding years staff changes during 1927 have been relatively numerous and have resulted in at least temporary interruption in important lines of investigation with which the Station is particularly identified. As far as possible a break in continuity has been avoided by remaining members of staff adding to their already full programmes the recording incidental to the experiments in progress. It has been difficult under the circumstances to give adequate attention to certain subjects in which it had been hoped that considerable headway might have been made during the year. In addition the course of development of the pathological investigations on the strawberry rendered it necessary for Mr. Staniland, the Entomological Adviser of the Station, to devote the major part of his time to that work, Mr. Lees, the Research Entomologist, relieving him of some of the Advisory work. Other events out of the ordinary course, such as

the putting into operation of a new scheme of work for the Empire Marketing Board, the Imperial Agricultural Research Conference, the erection of the new laboratory extension, and a succession of overseas visitors, tended to interfere still further with regular work. Altogether the year has been the most difficult as regards maintenance of normal work since the War.

In spite of these difficulties progress generally has been substantial and important and significant results have been obtained in several lines of work. Equally satisfactory has been the obvious steady development of interest taken in the work of the Station, which has become very marked during the past few years and has been particularly noteworthy during 1927. It has shown itself through correspondence, requests for lectures dealing with the various subjects under investigation, visits to the Station by organised parties as well as by individuals, and in other ways. There has been a notable increase in the number of overseas workers in horticultural science, a result largely attributable to the visit of the Deputy Director to America in 1926 and indicative of the manner in which knowledge of the work of the Station is extending.

The outstanding feature of the year in respect of development of the work is a very considerable extension of the section concerned with the nutrition of fruit trees. This has been made possible by a special maintenance grant from the Empire Marketing Board for a five-year period in addition to a substantial grant for the requisite capital expenditure. The particular problem or, more accurately, series of problems to be investigated is the influence of the conditions under which the fruit tree is grown upon the quality of the fruit. Among the conditions to be taken into account are those of soil, climatic factors, supply of nutrients, and root stock and, among the fruit characters, size, texture, colour, chemical composition and flavour, and, in particular, keeping quality. Under this scheme it will be possible to concentrate more intensively than previously on several related lines of work upon which the Station has now been engaged for several years. While the results should be of special advantage to the English fruit grower, since they will be obtained mainly under his own growing conditions, there is little doubt that in many directions generalisations will be possible which should assist growers of fruit in all parts of the Empire in their own local problems, especially in the very important directions of storage and transport.

Staff. The Station has sustained the loss of the services of one of its senior members of staff by the resignation of Mr. A. H. Lees, M.A., whose appointment dates back as far as 1912. He is succeeded as Research Entomologist by Dr. C. H. Walton, who has served as Advisory Entomologist for the North Wales Province.

Mr. C. E. T. Mann, M.Sc., who has held the appointment of Plant Physiologist since 1924, accepted the post of Plant Physiologist at the recently established Rubber Research Station at Kuala Lumpur early in the year. His successor, Dr. T. Swarbrick, commenced his duties in August on his return from the United States, where he had been engaged on post-graduate research at Wisconsin University since December 1926. Dr. Swarbrick has already had recent experience of the work at Long Ashton, having spent two years at the Station as a research scholar of the Ministry of Agriculture immediately prior to his visit to America.

In view of the dearth of suitably trained pomologists, the departure of Mr. E. Ball, M.A., the Research Pomologist, last March to enter a commercial career created a situation of some difficulty in the pomological department. It was decided in consequence to reorganise the staff arrangements of that department. Mr. J. G. Maynard, the Practical Pomologist, has been given charge of the investigations hitherto conducted by Mr. Ball, in addition to his previous duties on the cultural side of the plantation work. The necessary additional help has been provided on the research side by the appointment of three Assistant Recorders, Messrs. Shaw, Clothier and Thompson, each of whom has had previous experience of the pomological work as members of the plantations staff. On the cultural side it has been necessary to alter the character of the post of Fruit Foreman. The work attached to this post has increased considerably owing to the developments of recent years and this opportunity has therefore been taken to divide the duties, part of which have been left in the hands of Mr. H. Locke, who has hitherto held the post, and the remainder taken over by his successor as Fruit Foreman, Mr. E. J. Young, a newcomer to the staff. The latter is concerned under the new arrangement solely with the cultural work of the plantations and the management of the labour staff required for that work, while Mr. Locke continues to carry on the remaining duties formerly attaching to the post and in addition becomes the Official Guide to the Station, a new appointment much needed in view of the continuous increase in the number of visitors to the Station.

Mr. J. E. Wells, N.D.A., Chemical Assistant in the laboratory

since 1923, accepted a commercial appointment early in the year and has been succeeded by Mr. A. N. Dunsby, B.Sc., A.I.C., from the Chemical Department of the University of Bristol.

The period of study at the Station of Mr. H. D. Bennett, M.Sc., a holder of a Horticultural Studentship of the Ministry of Agriculture, terminated early in the year. He has now secured an appointment at the John Innes Institute.

The special investigation on the composition of tar oil spray fluids carried on during 1926 by Mr. L. E. Smith, Ph.D., resulted in the preparation of new spray mixtures, trials of which under a special grant from the Ministry of Agriculture had to be completed after his departure to Germany by Messrs. Tutin and Lees with the assistance of Mr. A. Wilkins, a member of the assistant laboratory staff. An account of those trials prepared by Mr. Tutin is included later in this Report.

Miss Kathleen Johnstone, Bathurst Student of Newnham College, Cambridge, began a year's course of post-graduate research in August, taking as a subject for investigation certain factors influencing the degree of resistance of varieties of apples to the Apple Scab fungus, *Venturia pomi*.

Mr. Hans R. Hansen, of The Statens Plantepatologiske Forsg, Lyngby, Denmark, who was making a tour of Agricultural Advisory Centres in Holland in 1927 by means of a scholarship awarded by the Royal Agricultural College, Copenhagen, spent a period of one month at the Institute during July and August. As Mr. Hansen's duties in Denmark are analogous to those of the Station's Advisory Officers in Economic Entomology and Economic Mycology, his time was devoted mainly to studying the particular problems on which these officers were engaged and their methods of attacking them.

Mr. Richard Wellington, Research Associate at the New York State Agricultural Experiment Station, Geneva, New York, U.S.A., also spent a fortnight at the Station during June for the purpose of studying the work in progress on rootstocks and plant breeding.

Under the new scheme already referred to, for which a grant from the Empire Marketing Board has been obtained, the following three appointments have been made. Mr. V. L. Smith-Charley, B.Sc., a member of the chemical staff of the Berkeley Square Advisory Centre, has been appointed for bio-chemical investigations. Mr. J. O. Jones, M.Sc., from the North Wales Advisory Centre at University College, Bangor, has been appointed Soil

Analyst. Miss U. Tetley, B.Sc., from the Botanical Department of the University of Leeds, is conducting for a period of twelve months an investigation on the developmental anatomy of the apple. In the case of her researches and also those of Dr. Swarbrick the Station is fortunate in securing the co-operation of Professor J. H. Priestley, Head of the Botanical Department of Leeds University. The Station is similarly fortunate in obtaining the co-operation of Dr. Cyril West, of the Low Temperature Research Station at Cambridge University, in the fruit storage trials which are required in connection with this scheme.

Land and Plantations. There has been no change in the position indicated in last year's Report regarding the provision of suitable land for the extension of the field experiments on fruit culture. When the planting of the various plots required for experiments already planned is completed, practically the whole of the land belonging to the Station available and appropriate for this class of work will have been absorbed. There still remains an extensive programme of field trials, arising from past and current investigations at the Station, which there seems little chance of putting into operation in the near future. The point has been reached when it has been necessary to clear two of the oldest tree fruit plots, which had outlived their utility for experimental purposes, to make room for additional trials with soft fruits. For similar reasons the older trial plots of seedling fruits are being reduced as quickly as the cropping tests permit.

The largest new plot for which provision has been made during the year is one of approximately 12 acres, which will be devoted to trials of the selected "free" apple stocks, which Mr. Spinks has now secured in sufficient numbers by means of vegetative propagation. The main trial on this plot will be that of trees grown as standards and the plot will be divided into two halves, the one being treated as a grass orchard and the other cultivated. During the early life of the latter there will be room by interplanting for trials of the same stocks used for bush trees and also for field experiments with bush fruits. On account of the large acreage required for the tests with the trees grown as standards the land available at the Station will be inadequate for testing all the stocks selected during the course of the investigations on "free" stocks, which have been in progress since 1913. An effort is therefore being made to arrange for supplementary trials at suitable centres elsewhere, in the first instance in the Bristol Province and later in other important fruit growing areas.

The renewed interest in cider orchards has led to arrangements for the planting of a further series of trial and demonstration orchards throughout the Bristol Province and the adjacent cider-making counties on lines somewhat similar to those followed in the early series, which date from 1908 onwards. The number of trees raised in the nurseries of the Station available for planting during the 1927-28 season is small, but many more should be available for distribution next season. During the course of the year there has been an opportunity of making a detailed survey of the older orchards planted under the original scheme, the results of which are included in the present Report.

Other trial plots of apple trees planted during the year at the Station include one required in connection with the work under the Empire Marketing Board Scheme. This will be under differential manurial treatment, designed to show the effects of farmyard manure on the one hand and of deficiencies of the various essential nutrient elements on the other hand. The variety of apple used is Lane's Prince Albert, planted on the Doucin stock (Malling Type II). The extent of the plot is $1\frac{1}{2}$ acres.

A new one acre plot of black currants is being mainly devoted to a field trial on the control of "reversion" and "big bud." Included in this trial also is an experiment on methods of pruning. The remainder of the plot is being appropriated for a comparative test of two new seedling varieties of black currants against the varieties Baldwin and Boskoop Giant, which are taken as representative types for comparison. The test is being duplicated at Wisley and East Malling and forms a part of the Wisley Variety Tests Scheme. One of the points in this trial to which special attention will be given is that of the experimental error incidental to field trials of this fruit.

In addition to the foregoing a plot of black currants, planted with two-year-old bushes of the Hilltop type of Baldwin, kindly given by the Trustees of the Bickham Estate, has been provided for a series of manurial trials.

In connection with the strawberry investigations which the Station has had in hand during the past few years, various new plots have been planted up. These are chiefly concerned with specific pathological problems. A second successional planting has been made on the series of plots devoted to the manurial tests of deficiencies of the respective essential nutrient elements.

Additions have been made during the year to the respective

trial plots of raspberry varieties, various fruit seedlings, and willow varieties.

The Institute now functioning as a Sub-Station under the Wisley Fruit Tests Scheme, the new varieties already selected for distribution under that scheme have been planted in appropriate plots.

Buildings. During the year the extension of the laboratory building referred to in the Report of last year has been carried out. The new wing is already partly in use and will be fully occupied early in 1928. The new building includes a room of suitable size for the holding of Conferences and other meetings, a need which has been apparent since the establishment of the Station and very pressing during recent years.

A series of special buildings and structures is required for the new work under the Empire Marketing Board Scheme. Plans for these have been prepared and erection will be proceeded with early in 1928. Among the buildings required is a fruit store for the storage tests at ordinary temperature. It has been possible by suitable alterations to adapt for this purpose one of the existing Fenswood Farm buildings, which has recently been in use for general storage of apples and pears. As modified according to the recommendations of Dr. Cyril West, based on his experience from the trials of various forms of fruit stores conducted by the Food Investigation Board, it promises to make an exceptionally satisfactory store of the most up-to-date ventilated type.

General. The Annual Tasting Day, held as usual on the first Thursday in May, proved a record-breaking function in nearly all respects. The attendance was easily the largest yet recorded, and probably exceeded 1,000 during the course of the day, since over 700 names were entered on the visitors' lists. To what extent the Cider Competitions, then in their second year, proved the attraction responsible for the large increase in number of visitors it is impossible to say, but there is no doubt as to the wide degree of interest which they have aroused, which should be reflected in due course in a general improvement in the condition of farm orcharding and in the quality of fruit produced for the cider industry.

On June 29th an Open Demonstration Day was arranged on similar lines to the series held during the course of 1925. The more interesting features of the work visible at that time of the year, including the variety trials of the various soft fruits, were demonstrated to the visitors. It was intended to hold a second

Open Day during September, to be concerned mainly with the tree fruits, but the continuous spell of bad weather during the summer and early autumn led to the idea being abandoned.

On the same day the adjourned Annual Meetings of the Governors and Members of the National Fruit and Cider Institute were held at the Station, so that the subscribers to the Institute might have a convenient opportunity of being shown something of the work at a time of year when they can see features of interest which are usually missed at the time of the Annual Tasting Day and other functions at the Station. Hitherto these meetings have taken place in the Bath and West Showyard at the time of that Society's Annual Show. In view of the appreciation of this new arrangement it is hoped that it will be possible to continue it regularly in future, in which case the Annual Meetings, which under the Articles of Association of the Institute must be held in the Bath and West Showyard during the Show, will serve there solely for the transaction of formal business and will be adjourned for the subsequent meeting at the Station.

Apart from these occasions when the Station was thrown open to visitors generally there was the usual series of visits by organised parties. Of special interest was that paid at the beginning of November by a group of members of the Imperial Agricultural Research Conference, most of whom were directly interested in the subjects of fruit culture and products or plant pathology. The complete list of these parties for the year is as follows :—

Bristol University Chemical Society.
 Bristol Education Committee's Gardening Classes.
 Imperial Agricultural Conference.
 The Workers' Educational Association.
 Messrs. J. S. Fry & Sons' Trades Welfare Section.
 Worcestershire Farmers' Union Fruit and Vegetables Committee.
 Colston's Girls' School Science Class.
 Saltford Women's Institute.
 Bristol Grammar School Scientific Club.
 Bristol University Summer School.
 Midover Norton & District Gardeners' Debating Society.
 Hotwells & District Allotments Association, Ltd.
 Messrs. J. S. Fry & Sons' Trades Welfare Section.
 Wilts Teachers' Class.
 Bristol Post Office Retired Officers' Association.
 Library & Club of Messrs. Braby & Co. Ltd.
 Dursley Branch of the National Farmers' Union.
 Pershore Progress Club.
 Party from Kingswood.

As usual, several exhibits illustrating the work of the Station were staged at various Shows during the year. In some cases the exhibit was a composite one, covering the advisory side of the work

Bath & West & Southern Counties Show, Bath.
Exhibition of Handicraft Work, Maidstone.
" " " Chichester.

Wilts County Agricultural Show, Devizes.

Royal Isle of Wight Show, Newport.

Royal Agricultural Society of England Show.

Cheltenham Spa Floral Fete, Cheltenham.

Three Counties Show, Worcester.

Devon County Show, Paignton.

Meeting of Members of the National Canning Council, Cardiff.

Exhibit with "marketing" bias for Ministry of Agriculture and Fisheries.

Lincolnshire County Agricultural Show, Spalding.

Brewers' Exhibition, London.

This evident desire on the part of fruit growers to obtain first-hand knowledge of the work upon which the Station is engaged has been shown also by the demand for the various publications which have been issued by the Station. The reserve stock of some of the Annual Reports and reprints of papers has already been exhausted and larger supplies will evidently be needed in future. A corresponding desire has been shown in various ways by research workers on horticulture and related subjects at home and abroad. Mention has already been made of the increase in the number of overseas visitors. In addition to the representative group forming the party from the Imperial Agricultural Research Conferences, the Station has been visited during the year by prominent workers and officials representing areas as scattered and remote as Canada, the United States, the West Indies, South Africa, Australia and New Zealand, Japan and various parts of Europe. A strong desire has been expressed in many cases for return visits from members of the Staff to examine the respective local conditions and problems on the

spot. Developments in this direction had been foreshadowed during the proceedings of the Imperial Agricultural Research Conference. The benefits to be gained by such interchange of visits are so generally recognised that they need not be enlarged upon here.

The scheme for the provision of local instruction in cider making, in which the counties of Dorset, Monmouth, and Worcester are jointly concerned, has been in full operation throughout the year. An account of the work is given elsewhere in this Report by Mr. P. T. H. Pickford, the Instructor in Cider making. It is believed that already it has been successful in improving the standard of cider making on the farms visited and on several occasions appreciation of the services rendered by the Instructor has been received.

The Cider Competitions initiated at the Institute in 1925-26 and fully reported upon in the Report for 1926 were repeated on similar lines during the season 1926-27. The results are dealt with in detail later in the present Report. In spite of another relatively poor cider fruit crop the number of entries was nearly double that of the first Competition. The judges on this occasion were Messrs. W. D. McCreath, J. W. Pullin and A. L. Sadler. General satisfaction with their awards in a very difficult task was freely expressed when the ciders were exhibited on the Annual Tasting Day and the warmest thanks of the Institute are due to them for their services, so generously given.

A new feature in the work of the cider department occurred during the course of the summer as a result of a visit paid to the Institute during the previous winter by Mr. F. L. MacDougall, the representative of Australia on the Empire Marketing Board, and Mr. T. W. Gepp, of the Department of Development and Migration of that country. Possible outlets for Australian apples of the lower grades have been under consideration and, as a result, the Institute offered to carry out a test of their value for cider making. The Australian Government, in accepting the offer, arranged for a consignment of representative varieties from Tasmania, and this fruit on arrival in July was then made into cider by the standard English methods.

The association of the Institute with various other centres in conjoint work, recorded in detail in the 1925 Report has been continued and in some cases extended. Specific mention of the following is called for.

The third annual joint meeting of the staffs of the East Malling and Long Ashton Institutes was due to be held at Long Ashton in the autumn of 1927. Owing to the numerous staff changes

and recent additions it was decided to defer it until the spring of 1928. In the meantime the conjoint work previously referred to has been proceeded with actively and, in addition, material assistance has been rendered in the investigation of various local problems in the South-Eastern area in cases of chlorosis, leaf scorch, and other soil difficulties, and of strawberry pathology.

The fourth annual joint meeting of the research, advisory and educational staffs of the Harper-Adams and Bristol Provinces was held in July at the Harper-Adams College. An apology is due to the Harper-Adams representatives at the absence of representatives of the Long Ashton Institute owing to the impossibility this year of arranging a mutually convenient date. The University of Bristol was, however, represented by the members of the Berkeley Square Advisory Centre.

The Surveys of Fruit Soils undertaken on behalf of the Ministry of Agriculture in conjunction with members of the staff of the Department of Agriculture of Cambridge University have been continued during the year. The Joint Committee responsible for the Surveys has been extended by the inclusion of representatives of the South-Eastern Agricultural College, Wye, and the East Malling Station in view of the arrangement of a new survey in the South-Eastern area by members of the staffs of those institutions. Monographs on the first two surveys, in the West Midlands and East Anglia respectively, completed in 1926, have been prepared and may be published in the series of Research Monographs issued by the Ministry of Agriculture.

The low-temperature fruit storage tests associated with the two latter surveys arranged in conjunction with the Food Investigation Board are being continued over a period of years. They are being supplemented by other storage tests at ordinary and low temperatures of apples examined in connection with the Empire Marketing Board Scheme previously referred to. The Institute and the Food Investigation Board are jointly responsible for the conduct of these tests and members of staff of the latter body are taking an active part in the recording of results.

A trial of varieties of Willows is being arranged by the Somerset County Council in association with representative willow growers of the County and the Willow Officer of the Station. Two acres of land for the purpose of these trials have been offered by growers in the Somerset Willow-growing area, and it is hoped that arrangements can be completed in time for the planting of the plots during the current planting season.

BERKELEY SQUARE ADVISORY CENTRE.

The work at Berkeley Square continues to expand and now covers a much wider field than was contemplated when the centre was first established. A point has already been reached in the case of the older branches where further expansion will only be possible by additions to the staff, the existing members of which find the task of coping with all the demands for their services an impossible one. There appears little prospect of the necessary corresponding increase in grants from the Ministry of Agriculture. While it is gratifying that in so short a space of time the Centre should have thus fully justified its establishment and have demonstrated the need for advisory assistance of this kind in the Bristol Province, those who desire help from it are asked to recognise that without increased resources staff limitations will make it inevitable that some enquiries must be subject to some delay in attention. They may be assured that every effort is made to deal with their problems as promptly as circumstances permit.

An important development affecting the Chief Advisory Officer, Dr. J. A. Hanley, has occurred during the year. The post of Principal of the Royal Agricultural College, Cirencester, having become vacant by the resignation of Professor M. J. R. Dunstan, M.A., the Governors of the College, which is associated with the University, and the University have arrived at an arrangement under which Dr. Hanley has been appointed to succeed Prof. Dunstan as Principal, at the same time retaining his post as Chief Advisory Officer for the Bristol Province. He becomes at the same time Professor of Agriculture in the University. This strengthening of the link between the College and the University will, it is hoped, enable both bodies to provide more adequately than hitherto for the needs of the Bristol Province in respect of agricultural education.

The other staff changes to be recorded are as follows:—

- Mr. C. A. MacEacharn, B.Sc., as Dairy Bacteriologist in place of Mr. H. R. Jones.
- Mr. W. R. Muir as a full-time Chemist to assist the Advisory Chemist in place of Mr. V. L. Smith-Charley, B.Sc., who obtained an appointment as Bio-Chemist at Long Ashton.
- Mr. C. W. Linley, N.D.A., to supervise the sugar beet demonstrations carried out under the Ministry of Agriculture's Scheme in the Western Province.
- Mr. R. S. Critchley, M.A., to assist with the investigation into cost of production of sugar beet in the Western Province.

The two last-named appointments represent new developments in the work of the Centre arising from the increasing attention which is being given to the cultivation of sugar beet in this country.

A further reference to the work of the Centre will be found in the Advisory Section of this Report and nothing more need be added here except a cordial acknowledgment of the assistance rendered from time to time by other Departments of the University, and in particular the Chemical Department, with which the work generally is most nearly associated.

ADVISORY WORK.

There has been a material increase in the number of enquiries over the record figure of last year. There is again a marked increase in the numbers of enquiries from those counties which have in the past taken least advantage of such facilities.

The following table gives the numbers of enquiries submitted during the last 6 years.

	Year ending September 30th.					
	1922	1923	1924	1925	1926	1927
Gloucester (including Bristol)	78	136	137	194	262	183
Hereford	21	62	107	88	91	115
Somerset	114	141	130	395	276	254
Wiltshire	18	66	24	117	175	104
Worcester	56	48	78	78	103	168
Other areas	201	205	195	222	309	478
	488	658	671	1094	1216	1302

Included in the figures under "other areas" are enquiries received from Devon and Monmouth, both of which contribute annual grants to the Long Ashton Institute, and from Dorset, which participates in the Scheme for Local Instruction in Cider-making. None of these counties rank officially as part of the Bristol Province.

This list does not indicate the very numerous enquiries dealt with in personal interviews during survey work, local investigational work, shows, etc. Also, as in previous years, no figures for enquiries received under the heads of Agriculture, Economics or Dairy Bacteriology have been included, so that the statistics given may be comparable with those of earlier years before those subjects were dealt with.

Special attention is directed to certain items in the sectional reports, which owing to their length cannot be included here but will be published in the Annual Report of the Station.

The work of the Advisory Chemist, on sugar beet, has necessitated the provision of certain permanent equipment and apparatus which has been provided by the University. The special interest taken by the Advisory Chemist in this crop has led to the accumulation of very useful data, which will be of great use to growers in the West Country. It has also stimulated the interest of farmers in the sugar beet crop.

The analytical work on herbage, collected from intensively managed grass land, is providing more accurate and interesting data on the feeding value of such pastures. This work again has required certain permanent equipment, for example, drying apparatus, which has been provided by the University.

The report of the Advisory Economist once again shows great progress in the investigations based on financial accounts. This work is rapidly becoming of paramount importance to general advisory work in the Province, and the figures already obtained are of the very greatest assistance in providing advice on a variety of farmers' problems. It has become very obvious, that in order to make these figures of the highest possible value, some systematic classification of farms must be made. Facilities for this work are not available. There is neither the staff nor the money required. A provisional classification has been based on information obtained by the Economists during their visits to farms, and partly on geological maps. No satisfactory classification can be made until more accurate information on the soils is available. The Advisory Chemist, in collaboration with the Advisory Economist, has surveyed a few farms in one or two areas and this small amount of work has been sufficient to demonstrate its value to the Economist, and has aroused very considerable interest amongst those farmers who submit accounts, and whose farms have been surveyed.

During the year most of the work in the counties has been carried out through the Provincial Advisory Conference, which continues to be a really live body and considers in detail the various experimental schemes submitted by members.

The joint Conference with the West Midland Province has again been held during the year.

A new feature in the Report this year is the section relating to the work under the recently started Scheme for Local Instruction in Cider-making. A highly encouraging beginning has been made, and many expressions of appreciation of the value of the Scheme have

been received. This remark applies both to the work of Mr. Pickford, the Instructor for the three counties of Dorset, Monmouth and Wiltshire included in the Scheme and also to that of Mr. Forshaw, who is doing similar work in Somerset directly under the County Authority. A definite improvement in the quality of farm-made cider has resulted, while a revival of interest in farm orcharding is already evident. In addition the Scheme is bringing into notice local varieties of cider apples of considerable promise which otherwise would have remained in obscurity. A further feature of value arising from the services of the Instructors has been the opportunity afforded of securing detailed records of the numerous trial and demonstration orchards which have been established throughout the Bristol Province and other associated counties with trees provided by the Long Ashton Institute.

The year under review has also seen the completion of the first Fruit Soil Survey, which was begun in 1922 and dealt with the Old Red Sandstone formation in the counties of Gloucester, Hereford and Worcester. The report on this work, which for the first time establishes a definite correlation between soil character and the behaviour of fruit trees and has brought to light many important associated phenomena, has been prepared and submitted to the Ministry's Advisory Conference.

Under the head of Pomology a feature of the year has been the concentration of attention on the serious problems of the strawberry grower, resulting from the inability of many existing stocks of strawberry varieties to maintain healthy growth and produce profitable crops. First call on the time of the Adviser in Economic Entomology has been given to these problems, and in this connection he has found it necessary to make an extensive pathological survey of the more important strawberry growing areas throughout the country.

The Adviser in Economic Mycology has devoted a large proportion of his time to a detailed study of the "Die-Back" diseases of stone fruits, which represent possibly the greatest problem of the fruit grower in the important fruit area of the Vale of Evesham and the adjacent districts. His investigations have prepared the way for research on the outstanding questions associated with these diseases.

A feature of the work of the Willow Officer has been the extent of the call on his services outside the Bristol Province. His position is, however, different from that of the regular Provincial Advisers

on the staff in that, being the only officer in the country dealing with this subject, he is expected to serve all districts, and not merely the counties of the Bristol Province.

TRIAL CIDER AND PERRY ORCHARDS.

(By B. T. P. Barker, O. Grove and P. T. H. Pickford.)

When the Institute started its career at the end of 1903 its first task in fruit culture was the establishment at Long Ashton of a typical cider and perry orchard, planted for trial purposes with a comprehensive selection of varieties of cider apples and perry pears which the experts of that day regarded as of the highest repute. Recognising that a trial of that kind at a single centre would be inadequate to decide the best kinds of fruit to be grown for cider and perry making in this country, the Committee proceeded concurrently to plant a nursery at the Institute for the propagation of both the varieties included in the afore-mentioned orchard and other sorts deserving of trial. From this nursery trees were to be distributed in due course to suitable centres in the cider-producing districts, so that there should be a series of trial orchards under varied conditions supplementing the main trial at Long Ashton.

The establishment of these external trials, which began in 1908, was possible at the time only by the co-operation of the various County Agricultural Education authorities concerned. Neither the resources nor the staff of the Institute were adequate to permit of a scheme of this scale being run without such local assistance. In recognising the indebtedness of the Institute to those authorities for their help, special acknowledgment must be given to the horticultural staffs of those departments, on whose shoulders the main burden of the scheme has fallen.

The nature of the co-operation required determined the character of the details of the scheme. The trees were presented to the respective County Councils on the understanding that suitable trial orchards would be established with them. The choice of sites and the number of trees allocated to each were left in the hands of those bodies. The selection of varieties in each case was decided in consultation with the Institute, and determined as far as possible in relation to the special needs of the districts concerned. The planting and after-care of the orchards was undertaken by the County staffs in arrangement with the occupiers of the land. Comparatively little land belonging to the Councils being available, most of the orchards had to be planted on privately-owned land.

and the trees thus became the property of the respective land-owners who had so public-spiritedly provided the trial grounds. The Institute reserved the right of inspection of the orchards at any time for the purpose of making the necessary observations on the trees and obtained promises of supplies of the crops as required later for chemical and cider-making tests at the prevailing market prices for the season.

A scheme of this kind presents several obvious weaknesses and some not so apparent. Possibly the greatest difficulty experienced has been that of a change of ownership or tenancy, accompanied in some instances by indifference or a desire to put the land to other use by the newcomer. However, at the time the scheme appeared the most satisfactory possible under the circumstances and it was recognised that a proportion of failures must be expected.

Past Annual Reports of the Station have contained records of the establishment of individual orchards, details of soil conditions, and occasional accounts of their progress. No attempt has been made so far to consider results in detail, since the oldest of the orchards are but twenty years from the date of planting and the trees are therefore only now approaching the time when their value as orchard trees and their cropping and vintage qualities can be fairly assessed. From now onwards results of real significance should be forthcoming and accordingly arrangements have been made for detailed surveys of the older orchards. During the summer and autumn of 1927 a preliminary survey by one or more of the authors was made of as many as could be visited in the time available, and the outstanding features of each are recorded in the present report. It is intended in succeeding reports to deal more specifically with tree size, disease susceptibility, and cropping tendencies (so far as they can be estimated on trees still comparatively young) of individual varieties in relation to the respective soil and other local conditions.

All the trial orchards planted before the war were visited during the course of 1927. Most of them were established during 1908-1910, and they have now reached an age when they should be coming into profitable bearing. This series of visits has emphasized the necessity of a period of twenty years or more after planting before a sound judgment can be pronounced as to the value of a variety in a certain district. There have been a number of examples of trees of certain varieties doing well in an orchard up to the age of

about 15 years and then in the course of a few more years going rapidly back, generally because of canker or die-back diseases. A striking example of this is the variety Cherry Norman, which in several orchards grew very satisfactorily until the trees were 12-15 years old and then in the next few years became completely valueless because of canker.

With the exception of canker, which is very serious in the case of some of the varieties, the trees are as a general rule fairly free from the more serious diseases and pests.

The perry pears have in most cases done well, but in a few orchards some of the varieties, especially Barland, have started to canker.

Generally speaking, the orchards in Gloucestershire and Monmouthshire are the best. On the whole they are very satisfactory and give evidence of closer attention than the orchards in the other counties. Their sites seem to have been better selected and the grass is generally in good condition, which is not the case with some of the other orchards, where the grass has become long and coarse.

DEVONSHIRE ORCHARDS.

King's Nympton : planted in 1908.

Varieties.—Cherry Pearmain, Skyrme's Kernel, Broadleaf Norman, Sweet Coppin, Chisel Jersey and Knotted Kernel.

The Cherry Pearmain trees have suffered from canker and are not growing well. Broadleaf Norman and Sweet Coppin have formed good trees and are quite satisfactory. Chisel Jersey is only fairly good, but Knotted Kernel has formed excellent trees.

Okehampton : planted in 1908.

Varieties.—Cowarne Red, Redstreak, Broadleaf Norman, Cummy Norman, Cherry Norman and Knotted Kernel.

The only variety which is growing satisfactorily is Knotted Kernel. The soil in this orchard is not suitable (see 1919 report).

Branscombe : planted in 1910.

Varieties.—Eggleton Styre, Strawberry Norman, Foxwhelp and Kingston Black.

Eggleton Styre is doing well and Strawberry Norman very well. Foxwhelp has only made fair growth and the Kingston Black trees are only very moderately developed.

DORSETSHIRE ORCHARDS.

Two orchards were planted in this county, one at Loders and one at Sherborne.

Loders : planted in 1908.

Varieties.—Foxwhelp, Neverblight, Rouge de Treves, Broadleaf Norman, Court Royal, Crémère, Eggleton Styre, Médaille d'Or, Virgin Mary and Yarlington Mill.

The situation of this orchard is very poor. It is very low-lying and the soil at one end of the orchard near a stream is extremely wet. As a result the trees near this brook are dying. It is understood that until quite recently this orchard was drained successfully, but the draining has been neglected during the last year or two. Attention has been drawn to this matter and it is hoped that when the drains are opened the conditions will be improved. Crémère, Broadleaf Norman, Yarlington Mill and Eggleton Styre have done fairly well and are cropping well. These were all planted in the highest part of the orchard. Neverblight has done fairly well, but the trees are rather small. Médaille d'Or, Rouge de Treves and Foxwhelp, planted where the soil is waterlogged, are very poor specimens and many of them appear to be beyond recovery.

Sherborne : planted in 1909.

This orchard was a failure from the beginning. The site was most unfavourable and the trees made no progress from the start, all of them now being dead.

GLOUCESTERSHIRE ORCHARDS.

The trial orchards in this county have upon the whole done very well and most of the varieties have been successful. All the orchards were visited and reported upon in 1919 (see the 1919 Annual Report).

May's Hill, Frampton Cotterell : planted in 1909.

Varieties.—Apples—Cherry Pearmain, Kingston Black, Sweet Alford, Knotted Kernel, Strawberry Norman, Red Foxwhelp, Eggleton Styre, Stubbard, Cherry Norman and Médaille d'Or.

Pears—Taynton Squash, Oldfield and Barland.

The Cherry Pearmain trees, which in 1919 were in poor condition, have recuperated to a certain extent and are now doing moderately

well. Kingston Black is not doing well in this orchard ; the trees are stunted and have started to canker. Sweet Alford is very satisfactory. Knotted Kernel has not grown so well in this orchard as is usual with the variety, the trees being small but healthy. Strawberry Norman has developed into very good trees, but a little canker has started to develop in places. Red Foxwhelp is only moderate. Eggleton Styre has done very well indeed and the same is the case with Stubbard. Cherry Norman is a complete failure, due to canker. The Medaille d'Or trees which were moved to a better sheltered orchard are doing moderately well, but on the whole the variety has not been successful. As a general rule the trees in the higher parts of the orchard are better than those in the lower part, which is rather wet.

The three varieties of pears, Taynton Squash, Oldfield and Barland, all grew satisfactorily but, as the owner did not want perry pears, he has had the trees regrafted to dessert pears.

Road Farm, Hardwick Court : planted in 1908.

Varieties.—Apples—Kingston Black, Skyrme's Kernel, Ecarlatine, Eggleton Styre, Sweet Alford, Cummy Norman, Medaille d'Or, Royal Wilding and Strawberry Norman.

Pears—Oldfield and Barland.

With the exception of Medaille d'Or all the above named varieties of apples have made very satisfactory progress, all the trees have developed very well, and no cases of disease have appeared. The Medaille d'Or trees, which were most unsatisfactory, have either been regrafted to other varieties or replaced. Two trees of White Close Pippin planted instead of Medaille d'Or are doing very well.

With regard to the pears, the Oldfields have formed very good trees but have started to die back. The Barland pear trees have done badly and have been regrafted to Longdon pear.

Holm's Farm, Lydney Park : planted in 1908.

Varieties.—Apples—Cowarne Red, Dymock Red, Foxwhelp, Crémière, Doux Amer, Sweet Coppin, Chisel Jersey, Knotted Kernel and Yarlington Mill.

Pears—Moorcroft and Taynton Squash.

Cowarne Red has started to canker, some of the trees very badly, and most of the trees will probably die from this disease in a few years time. Of the other varieties Dymock Red and Knotted Kernel have done very well indeed and Sweet Coppin, Crémière and

Doux Amer have also developed very satisfactorily. Foxwhelp is not satisfactory and Chisel Jersey and Yarlington Mill are only moderate.

Both the pears are very satisfactory.

Floodgate Farm, Berkeley Castle : planted in 1908.

Varieties.—Apples—Cap of Liberty, Kingston Black, Improved Pound, Eggleton Styre, Killerton Sweet, Sweet Alford, Cherry Norman, Rouge Bruyère and Royal Jersey.

Pears—Barland and Moorcroft.

Cap of Liberty is very satisfactory. Kingston Black has done very well, but some of the trees have now started to develop a little “die-back.” With the exception of Cherry Norman all the other varieties are very satisfactory. Sweet Alford is especially successful. Cherry Norman has started to canker rapidly and will be regrafted with Kingston Black.

With regard to the pears, Moorcroft is satisfactory, but Barland is in very poor condition.

Tibberton : planted in 1909.

Varieties.—Cap of Liberty, Cowarne Red, Kingston Black, Eggleton Styre, Sweet Alford, Dabinett, Knotted Kernel, Medaille d’Or and Strawberry Norman.

Cap of Liberty, Kingston Black, Eggleton Styre, Sweet Alford, Knotted Kernel and Strawberry Norman have all done very well ; especially good are Sweet Alford and Kingston Black. Dabinett and Medaille d’Or have already been headgrafted with other varieties (see 1919 Annual Report), as they did not do at all well. Cowarne Red is hopelessly spoiled by canker.

HEREFORDSHIRE ORCHARDS.

Burghill Asylum : planted in 1908-9.

Varieties.—Dabinett, Improved Pound, Sweet Alford, Eggleton Styre, Court Royal, Broadleaved Jersey, Strawberry Norman, Fair Maid of Devon, Sweet Coppin, Knotted Kernel, Dymock Red, Yarlington Mill, Cherry Norman, Killerton Sweet, Hereford Red-streak, Somerset Redstreak, Butleigh 14, No. 32, Kingston Black Improved, Kingston Black, Foxwhelp, Skyrme’s Kernel, Cowarne Red, and Medaille d’Or.

Dabinett, Improved Pound, Sweet Alford, Eggleton Styre, Court Royal, Broadleaved Jersey, Strawberry Norman, Fair Maid of

Devon, Sweet Coppin, Knotted Kernel, Dymock Red, Yarlington Mill, Cherry Norman and Killerton Sweet have done very well, this being especially so in the cases of Sweet Alford and Fair Maid of Devon. Several of the Cap of Liberty trees are rather small. The Hereford Redstreaks are fair trees but small. The Somerset Redstreaks are rather larger. Butleigh 14 has not made good growth. No. 32 has only made small trees but they are quite healthy. Kingston Black Improved are rather small but fairly good. Kingston Black has not done well: some are just fair, but at one end of the orchard they are very small indeed. Foxwhelp and Skyrme's Kernel have not made much growth; the trees are rather small but they appear to be quite clean and healthy. Cowarne Red is evidently recovering from canker and has made healthy growth. The Medaille d'Or trees have been regrafted with other varieties (see 1919 Annual Report).

MONMOUTHSHIRE ORCHARDS.

Llansaintfraid: planted in 1908.

Varieties.—Kingston Black, Redstreak, Eggleton Styre and Medaille d'Or. (Knotted Kernel was planted in 1909).

Kingston Black has done very well and is carrying fair crops. Redstreak and Eggleton Styre have also done well and have made big fine trees. Medaille d'Or is not satisfactory: the trees are very small and have broken down badly. Knotted Kernel has formed good trees but they have not yet carried a crop. In a good season this orchard will no doubt produce a valuable crop.

Treowen: planted in 1908.

Varieties.—Kingston Black, Foxwhelp, Cherry Norman and Knotted Kernel. (Further trees of Knotted Kernel and Cap of Liberty were planted in 1909).

All the varieties have made good growth, though Cap of Liberty has not done so well as the others. Kingston Black and Cherry Norman have made the best trees, whilst Foxwhelp and Knotted Kernel are quite satisfactory. Although this orchard has been very backward in coming into bearing, the owner considers that given a good season there would now be a successful crop. There was a decided improvement in the crop during 1927, Cherry Norman and Foxwhelp carrying fairly good crops and Kingston Black giving a fair amount of fruit.

Itton Court : planted in 1908.

Varieties.—Apples—Cap of Liberty, Eggleton Styre, Knotted Kernel and Strawberry Norman. (Further trees of Eggleton Styre and Kingston Black were planted in 1909).

Pears—Moorcroft, Barland, Taynton Squash and Oldfield.

The fact that some varieties are cankering badly in this orchard, is evidently due to the soil being very shallow and rocky where they are planted. Eggleton Styre and Knotted Kernel, planted where the soil is deeper, have done well and have made big fine trees. Cap of Liberty has done excellently but the trees are now beginning to canker slightly. The Strawberry Norman trees are suffering very badly from canker, although they have made fine growth. Kingston Black, which was planted in the worst part of this orchard, has done badly and the trees are nearly all suffering from canker. Cap of Liberty, Strawberry Norman and Eggleton Styre carried a sparse crop of fruit in 1927.

The perry orchard has been a failure. The texture of the soil is undoubtedly the cause. Taynton Squash is the best of a bad lot. Barland is the worst, and the trees are in a bad condition. An attempt has recently been made to improve the trees by cultivating the soil around them, and they were all pruned and sprayed during last winter. It is doubtful, however, whether any cultivation or manurial treatment will overcome the physical defects of the soil.

Tyllwydd, Llangwn, Usk : planted in 1908.

Varieties.—Cap of Liberty, Kingston Black, Royal Jersey and White Jersey. (Dymock Red was planted in 1909).

Kingston Black, Cap of Liberty and White Jersey have done well and have formed good trees. Royal Jersey has done satisfactorily but the trees are rather small. Dymock Red has made fair growth but the trees are not so healthy as the others. Royal Jersey and White Jersey carried good crops.

Rhiwderin : planted in 1908-9.

Varieties.—Rouge de Treves, Crémière, Doux Amer, Ecarlatine, Bramtôt, Médaille d'Or, Tardive Forestier, Frequin Rouge and Rouge Bruyère.

Doux Amer has been the most satisfactory. Crémière and Ecarlatine have made very fine trees, but Crémière is cankering badly, and Ecarlatine slightly. Médaille d'Or has done fairly well

and the breaking down has been overcome by pruning breaking branches hard back. Rouge Bruyère has not done so well and one or two trees are suffering from canker. They have never carried a good crop of fruit. Rouge de Treves has done fairly well but has not made such fine growth as some of the other varieties. Bramtôt has done well, while Tardive Forestier and Frequin Rouge have made moderate trees. Doux Amer, Rouge de Treves and Medaille d'Or carried a good crop of fruit.

Bassaleg : planted in 1908-9.

Varieties.—Fair Maid of Devon, Sweet Alford, Chisel Jersey and Dabinett.

This orchard is one of the best in the county. All the trees have done well, especially Fair Maid of Devon and Sweet Alford, which are excellent. Dabinett has formed good trees, and they were bearing a good crop this year. The Chisel Jersey are rather small but quite satisfactory and bearing well. This orchard has carried fine crops of fruit. Sweet Alford bears exceedingly well.

Llandewi Court : planted in 1909.

Varieties.—Barland, Butt, Claret, Dandoc, Helen's Green, Holmer, Moorcroft, Oldfield, Pine and Taynton Squash.

All the varieties in this perry orchard have done well, with the exception of Barland and Pine. Moorcroft, Taynton Squash and Oldfield have done best, while Claret, Butt and Holmer are satisfactory. Dandoc has not done quite so well but the trees are not in a favourable position. Barland and Pine have not done well; although they have made fine trees they are suffering badly from canker.

The Hendre : planted in 1911.

Varieties.—Redstreak, Kingston Black, Cap of Liberty, Dymock Red, Knotted Kernel, Silver Cup and Royal Wilding.

Most of the varieties have done fairly well taking into consideration the fact that they were planted in new unweathered soil. Cap of Liberty has done the best; the trees are very healthy and well developed. Kingston Black has made fairly good growth and the same applies in the case of Royal Wilding. Dymock Red, Silver Cup and Knotted Kernel have not done so well as the other varieties. There was a good crop this year on Kingston Black and Cap of Liberty, while Knotted Kernel had a fair crop.

Old Court, Abergavenny : planted in 1910-11.

Varieties.—Barland, Huffcap, Oldfield and Taynton Squash.

All the trees in this perry orchard have done remarkably well. Taynton Squash and Oldfield were bearing good crops in 1927. Barland has formed fine trees but they are not yet bearing much fruit. The Huffcap trees are making fairly good progress.

The Hendre Home Farm : planted in 1908.

Varieties.—Blakeney Red, Barnett, Port, Butt, Claret, Moorcroft, Taynton Squash, Oldfield and Barland.

This is a remarkably good perry orchard. The trees on the whole have done very well, though some were bearing shyly this year. Blakeney Red is the best, and Barnett, Port, Butt, Claret, Moorcroft and Taynton Squash have all made fine trees. Oldfield was bearing a good crop but the trees have not developed so well as the others, and are not so healthy. Only one Barland remains. Blakeney Red, Barnett and Taynton Squash were carrying good crops this year.

SOMERSET ORCHARDS.

The orchards in this county are upon the whole not so good as the orchards in Gloucester and Monmouth (see also 1919 Annual Report).

Barton St. David : planted in 1908.

Varieties.—Apples—Cowarne Red, Hereford Redstreak, Skyrme's Kernel, Broadleaf Norman, Cummy Norman, Eggleton Styre, Combes Cadbury. Sweet Coppin and Strawberry Norman.

Pears—Barland, Moorcroft, Oldfield and Taynton Squash.

Cowarne Red has done badly in this orchard ; there are only six trees left of the ten planted, the rest having cankered and died. Of the six left, two trees are moderately good, the others being undersized and attacked by canker. The row of this variety is in a part of the orchard that is rather wet. Hereford Redstreak has not done well, and most of the trees have been regrafted with culinary varieties. Of the Skyrme's Kernel trees only one is doing well, the others being small and suffering from canker ; they are in the wettest part of the orchard. Broadleaf Norman, Cummy Norman, Eggleton Styre, Combes Cadbury and Strawberry Norman all show satisfactory development. All the Sweet Coppin trees, which in

1919 were very well developed, have unhappily been regrafted with culinary varieties.

The owner has had nearly all the perry pears regrafted with dessert varieties. There are only two trees of Oldfield left, and they are rather stunted in growth and dying back.

Clutton : planted in 1908.

Varieties.—Apples—Foxwhelp, Kingston Black, Never Blight, Crémère, Eggleton Styre, Sweet Alford, Knotted Kernel, Médaille d'Or.

Pears—Barland, Moorcroft and Oldfield.

The Foxwhelps have not done well ; the trees are stunted in growth but are otherwise healthy. Kingston Black has done very badly ; most of the trees are dead and the remainder are small and badly cankered. Never Blight and Crémère are not satisfactory ; the latter have started to die back. Eggleton Styre and Sweet Alford are only very moderate. The Knotted Kernel trees are fairly good, but not nearly so well developed as is usual with this strong growing variety. Médaille d'Or has mostly been regrafted as this variety was doing badly and breaking down.

Of the pears, Barland is doing badly ; the trees are cankered and full of Scab. Some of the Taynton Squash and Moorcroft trees are fairly satisfactory in the higher parts of the orchard. The Oldfields were planted in the lower and rather wet part of the orchard, and they are not very well developed.

East Compton, Shepton Mallet : planted in 1908.

Varieties.—Apples—Foxwhelp, Hereford Redstreak, Skyrme's Kernel, Eggleton Styre, Sweet Alford, Cherry Norman, Knotted Kernel and Strawberry Norman.

Pears—Barland, Moorcroft, Oldfield and Taynton Squash.

The condition of the trees in this orchard is to a great extent determined by the shallowness of the soil. In most places the depth of the soil above the rock is not sufficient to permit the trees to develop normally, and consequently the trees are undersized and badly developed in many cases. Here and there, where the depth of the soil is adequate, normally developed trees are found but, on the whole, this orchard is far from satisfactory. Foxwhelp, Hereford Redstreak, Skyrme's Kernel and Knotted Kernel are the varieties which have done best, and which show some satisfactory

trees. Sweet Alford and Eggleton Styre show a few trees with fair development. Cherry Norman and Strawberry Norman are suffering from canker.

The pears are nearly all unsatisfactory, and many of the trees are attacked by canker.

It would appear that the site of this orchard is quite unsuited for trials of this kind.

Christon Court, Axbridge : planted in 1908.

Varieties.—Apples—Cherry Pearmain, Cowarne Red, Dymock Red, Foxwhelp, Redstreak, Broadleaf Norman, Killerton Sweet, Stubbard, Cherry Norman, Cummy Norman, Harry Masters, Major, Medaille d'Or, Royal Wilding and Yarlinton Mill.

Pears—Barland, Barnett, Blakeney Red, Butt, Oldfield, Pine and Taynton Squash.

The Cherry Pearmain trees are not very well developed : they are mostly too small, but healthy. Cowarne Red has done very badly ; the trees are dying back and badly cankered. Dymock Red shows very satisfactory growth. Foxwhelp is doing badly ; the trees are small and appear to be dying. Redstreak is only moderate ; the trees are under-developed. Broadleaf Norman is fair ; the trees have, however, started to canker. Killerton Sweet and Stubbard are both doing very satisfactorily. Cherry Norman is a failure ; the trees are dying from canker. The Cummy Norman trees are also suffering from canker, especially in the lower part of the orchard. Harry Masters has formed fairly good trees ; they are best in the higher part of the orchard. Major is satisfactory. Medaille d'Or is not very good, and the trees are breaking down. Royal Wilding and Yarlinton Mill are not as well developed as could be desired. Some trees of Silver Cup planted later than 1909 are doing very well.

Of the pears Barnett, Taynton Squash and Blakeney Red are very satisfactory. The other three are not quite so good. The Old-fields are suffering to a certain extent from Scab and "Die-back."

WORCESTERSHIRE ORCHARDS.

Madresfield Court : planted in 1908.

Varieties.—Apples—Cap of Liberty, Foxwhelp, Cherry Pearmain, Cowarne Red, Dymock Red, Fair Maid of Devon, Never Blight, Skyrme's Kernel, Broadleaf Norman, Court Royal, Improved Pound, Sweet Alford, Sweet Coppin, Cherry Norman, Dabinett,

Knotted Kernel, Medaille d'Or, Rouge Bruyère and Strawberry Norman.

Pears—Barland, Butt, Oldfield, Moorcroft, Pine and Taynton Squash.

Medaille d'Or are small trees but healthy ; they appear to have recovered from breaking down so badly in early life. Never Blight, Dabinett and Cherry Pearmain are small but quite sturdy and bearing well. All the other varieties are very satisfactory.

Regarding the pears Butt has done the best and formed very fine trees. Taynton Squash, Moorcroft and Pine are all good trees. Barland and Oldfield have made fine trees but they are suffering slightly from canker.

Newnham Court, Tenbury : planted in 1908-9.

Varieties.—Broadleaf Jersey, Broadleaf Norman, Knotted Kernel, Medaille d'Or, Strawberry Norman and Cherry Norman.

Strawberry Norman, Cherry Norman, Knotted Kernel and Broadleaf Jersey have all done well. Broadleaf Jersey has done remarkably well. Broadleaf Norman, planted on the top of the hill where the soil is rather shallow, has not done so well. Many trees of this variety have been replaced. All the Medaille d'Or trees have been regrafted, as they were not a success. There was a fair crop of fruit on Cherry Norman and Broadleaf Norman. Strawberry Norman was bearing very irregularly.

Powick Asylum : planted in 1908.

Varieties.—Foxwhelp, Hereford Redstreak, Broadleaf Norman, Eggleton Styre, Knotted Kernel and Strawberry Norman.

All the varieties have done fairly well but they are undersized. The orchard has been stocked with pigs and, as the trees were not protected, the trunks have been damaged in some cases. Broadleaf Norman, Knotted Kernel and Strawberry Norman have done best. Eggleton Styre and Foxwhelp have done fairly well but the Foxwhelp trees are small. Knotted Kernel has not yet carried a good crop. Broadleaf Norman and Hereford Redstreak have been badly damaged by stock but were bearing good crops this year. There was a fair amount of fruit on Strawberry Norman.

Hyde Farm, Upton : planted in 1908.

Varieties.—Kingston Black, Court Royal,³ Ecarlatine, Harry Masters, White Jersey and Fair Maid of Devon.

These trees have evidently made headway since they were last reported on. Court Royal, Fair Maid of Devon, Ecarlatine and Harry Masters have all made good trees. Fair Maid of Devon and Harry Masters were carrying a heavy crop of fruit. Court Royal was bearing fairly well. Ecarlatine has made fine growth but the trees are cropping irregularly. Kingston Black has made very poor growth. Although the trees are very small they appear to be quite healthy, and they are bearing a good crop. The same applies to White Jersey. These trees appear to have suffered from lack of attention when they were younger, but they are evidently overcoming this.

Wollas Hill, Pershore : planted in 1908.

Varieties.—Apples—Foxwhelp, Skyrme's Kernel and Sweet Alford.

Pears—Barland and Oldfield.

Sweet Alford has made excellent trees with fine heads. They were bearing a good crop this year. Skyrme's Kernel also made very fine trees and were carrying a fair crop of fruit. Foxwhelp has not done well. The trees are small and not healthy. Barland has done remarkably well. The trees are big, well developed and healthy. The Oldfields have also done well and formed good trees. There was only a very light crop of fruit on the pears this year.

The Stocks, Suckley : planted in 1909.

Varieties.—Cherry Pearmain, Kingston Black, Knotted Kernel and Strawberry Norman.

Kingston Black, Knotted Kernel and Strawberry Norman have made excellent trees. The Kingston Black trees are by far the best of this variety in the county orchards. Cherry Pearmain has not done well. The trees are very small and do not appear healthy. There was only a very light crop of fruit in this orchard in 1927.

Beauchamp Court : planted in 1912-13.

Varieties.—Apples—Sweet Alford, Eggleton Styre and Cap of Liberty.

Pears—Taynton Squash, Butt, Moorcroft, Barnett, Blakeney Red, Dandoc and Barland.

Sweet Alford has done remarkably well ; they are very big fine trees. Eggleton Styre is quite satisfactory. Cap of Liberty, planted in a wet part of the orchard, has not done well ; the trees have made very little growth and are not healthy.

Taynton Squash, Butt, Moorcroft, Barnett and Blakeney Red have all formed good trees, especially Barnett, which has done very well. Two Dandocs have not done so well as these other varieties, though this may be due to soil conditions not being so favourable. The trees were planted at the bottom of the orchard where the soil is rather wet, but another Dandoc tree planted higher up has developed quite satisfactorily. Oldfield and Pine have not done well. Barland has made poor growth and is suffering badly from canker.

There was a very poor crop of fruit in this orchard in 1927. The frost caused serious damage to the blossom in this district.

CIDER-MAKING TRIALS.

With regard to ciders made from the above trial orchards, it has so far been difficult to get fruit of a single variety in sufficient quantity for a cider making trial on a large scale, for which about half a ton is required, but from some of the orchards trials have been carried out with a mixture of the varieties grown. This is the case with all the orchards in Gloucestershire, and the results have been very satisfactory ; in each instance a cider of good quality has been made from the blend.

In some cases the owners of the orchards have not desired to part with the fruit as it fetched a good price in the market as pot-fruit, and in other cases they have wanted the fruit for their own cider making. As the trees are now coming into full bearing, it is hoped to get sufficient fruit for large scale trials in the near future.

TABULATION OF RESULTS.

For convenience of reference and comparison the following table has been prepared. It indicates the manner in which individual varieties have grown in each trial orchard. The varieties which have made thoroughly satisfactory growth and produced strong healthy trees are placed in Class 1, indicated by the figure 1 in the table. Class 2 varieties, indicated by the figure 2 in the table, are those which have given satisfactory trees, but not so strong generally as those indicated in Class 1. The Class 3 varieties, indicated in the table by figure 3, have given fairly satisfactory results. Class 4 varieties, indicated by the figure 4 in the table, have made poor growth. Class 5 varieties, indicated by the figure 5 in the table, are those which have been complete failures.

VARIETY OF APPLE.	ORCHARDS.							AVERAGE CLASS FIGURE
	Devon	Dorset	Gloucester	Hereford	Monmouth	Somerset	Worcester	
King's Nympion	Okhampton	Loders	Frampton Cotterell	Hardwick	Lydney Park	Berkeley Castle	Tibberton	
Branscombe				Burghill				
..	2	2			3	2		3.0
Bramlot	1.5
Broadleaf Jersey	2.5
Broadleaf Norman	2.5
Cap of Liberty	3.6
Cherry Norman	3.2
Cherry Pearmain	3.0
Chisel Jersey	2.7
Court Royal	4.5
Cowarne Red	3.0
Grenière	3.2
Gummy Norman	2.0
Combes Cadbury	2.5
Dabinett	1.5
Doux Amer	2.0
Dymock Red	2.3
Escarlatine	2.1
Eggleston Sire	1.5
Fair Maid of Devon	3.3
Forwhelp

Class 1.—Excellent. Class 2.—Good. Class 3.—Moderate, Class 4.—Poor. Class 5.—Bad.

ORCHARDS.										AVERAGE CLASS FIGURE	
VARIETY OF APPLE.		Devon	Dor- set	Gloucester	Here- ford	Monmouth			Somerset	Worcester	
		King's Nympton Okehampton Branscombe	Loders	Frampton Cotterell Hardwick Lydney Park Berkley Castle Tibberton	Burghill	Llansainfrad Trecwen Tyllwydd, Llangwn Rhwyderin Bassaleg Llanddewi Court The Hendre Old Court, Abercavenny The Hendre Home Farm		Barton St. Davids Clutton East Compton Axbridge	Madresfield Newnham Court Powick Asylum Hyde Farm, Tipton Wollas Hill The Stocks, Suckley Beauchamp Court		
Frequin Rouge	..				3	1	3	4	3	2	3.0
Harry Masters	..	5			2				3		2.5
Hereford Redstreak	..			2	2				2		3.1
Improved Pound	..			2	2						2.0
Killerton Sweet	..			2	3	2	1	4	2	3	2.4
Kingston Black	..	3		2	3	2	2	2	3	1	2.0
Kingston Black Improved	..				2	2	2	2	2	1	3.0
Knotted Kernel	1	2		3	2	3			4	3	2.1
Medaille d'Or	..		5	4	2		3		2	5	4.2
Major	..				3				1	3	2.0
Never Blight	..		3								3.3
Royal Jersey	..			2			3				2.5
Royal Wilding	..			2					3		2.3
Rouge Bruyère	..			2						3	2.6
Rouge de Treves	..						3				3.0
Silver Cup	..						3				2.5
Skyrme's Kernel	..	3		2	3			4	3	2	2.7
Strawberry Norman	..	2		2	2	4				2	2.2
Stubbard	..		1		2				2	3	1.5
Class 1.—Excellent. Class 2.—Good. Class 3.—Moderate. Class 4.—Poor. Class 5.—Bad											

Class 1.—Excellent. Class 2.—Good. Class 3.—Moderate. Class 4.—Poor. Class 5.—Bad

CIDER-MAKING TRIALS FOR THE SEASON 1926-27.*By O. Grove.*

For the third year in succession the cider apple crop was below average. The quality of the juices was good, the average specific gravity of all the juices made into cider at Long Ashton being 1.0532.

THE CIDER COMPETITIONS.

The special competitions which were started last year were continued, and 75 entries of fruit were received. The competitions were carried out on the same lines as last year, and a class for perry pears introduced. In each case 15 cwts. of fruit were used, the fruit kept until judged to be fit for milling, and the subsequent treatment the same in each class. The ciders were filtered when the juice had fermented down to the following specific gravities :— Class I 1.028, Classes II and VI 1.030, Classes III, IV and V 1.025. Details of the entries will be found in Table 1.

The competition was open to growers residing in the counties of Devon, Dorset, Gloucester, Hereford, Monmouth, Somerset and Worcester.

The ciders were judged on the 20th of April, 1927, by Messrs. Wm. D. McCreath, North Petherton, Somerset; John W. Pullin, Compton Greenfield, Gloucester; and A. L. Sadler, Tiverton, Devon. They reported as follows :—

REPORT OF JUDGES**ON THE LONG ASHTON CIDER COMPETITIONS 1926-27.**

The ciders in these competitions were judged by us on Wednesday, April 20th, 1927, to enable the awards to be announced on the occasion of the Annual Tasting Day on Thursday, May 5th. As pointed out by the Judges in the corresponding competition last year, this early date for judging involves the drawback of the ciders being still comparatively immature at the time of judging, and allowance for this fact has had to be made in considering the awards.

The entries were divided into six classes, five for cider and one for perry. The five classes for cider were as in last year's Competitions, viz. :—

Class I for the Kingston Black variety alone.

„ II „ single varieties of the sharp class.

„ III „ „ „ „ sweet „

„ IV „ „ „ „ bittersweet class.

„ V „ mixed varieties of apples, selected and blended by the individual competitors themselves in proportions judged by them to constitute a satisfactory blend.

The class for perry, Class VI, was for any single variety of perry pear.

In Class I, the ciders generally were of a useful order, although in no case quite reaching the best Kingston Black standard. The acidity on the whole was more marked than is customary for the variety, but the bitter character was not so pronounced as it is in some seasons. The body was fair throughout and the colour on the pale side for the variety. The entries gaining awards were characterised by their relative softness.

Class II, consisting of the "sharp" varieties, was with one or two exceptions a class of clean useful ciders. The prizewinners and the other ciders receiving mention were particularly noteworthy, and it was not easy to decide the order of merit.

In the "sweet" class, Class III, the ciders sorted themselves into two obvious groups, those gaining awards being definitely of a higher grade than the others. The standard of the superior group was distinctly high.

The "bittersweet" class, Class IV, proved an extremely difficult one to judge. The ciders as a whole were good and differed chiefly in degree of bitterness. We recognise that there will be undoubtedly a considerable variety of opinion as to the relative merits of at least one-half of the ciders in this class.

Class V for "blends" was last year of a disappointing character. On this occasion the average was really good, and several of the entries were of distinctly high quality. The settlement of the final order was not an easy matter.

The perry class, Class VI, did not contain any outstandingly good entry. Most of the perries showed a marked astringent character, and the quality generally was, if anything, below rather than above average.

In conclusion, we desire to express our satisfaction at the general condition of the samples and the obvious evidence that the treatment in all cases had been as uniform as possible, thus giving all entries an equal chance. The number of entries was surprisingly high considering the limited crop of fruit and augurs well for the future success of this Competition Scheme.

Sgd. WM. D. MCCREATH.

„ JOHN W. PULLIN.

„ A. L. SADLER.

Judges.

TABLE I.
COMPETITION VARIETIES.

No.	Name of Variety.	Name of Grower.	Date or making.	Specific Gravity of Fresh Juice.	Malic Acid per cent.	Tannin per cent.	Rate of fermen- tation at 25°C	Date of Filtering.	Specific Gravity at time Filtering.	Specific Gravity of May, 1927.	District where grown.
CLASS 1.—KINGSTON BLACKS—											
1	Kingston Black	H. Knight	4/11/26	1.067	0.77	0.19	8.4	26/11/26	1.028	1.024	Huntley, Glos.
2	"	J. A. H. Hurditch	18/10/26	1.061	0.74	0.20	4.4	11/12/26	1.028	1.027	Yatton, Som.
3	"	W. Wyatt	20/10/26	1.063	0.80	0.17	8.0	22/11/26	1.028	1.027	Kingweston, Som.
4	"	R. J. Denning	4/11/26	1.056	0.62	0.18	4.6	18/12/26	1.028	1.027	Ilminster, Som.
5	"	H. E. Dabinett	5/11/26	1.060	0.62	0.18	3.7	7.1.27	1.028	1.027	Somerton, Som.
6	"	E. W. Dabinett	4/11/26	1.066	0.76	0.20	5.8	23/12/26	1.028	1.028	Kingweston, Som.
7	"	H. C. Jennings	4/11/26	1.066	0.67	0.17	5.6	7.1.27	1.028	1.028	Shapwick, Som.
8	"	A. E. Hill	4/11/26	1.061	0.69	0.17	5.0	12/1/27	1.028	1.028	Ledbury, Her.
9	"	W. Hunt	4/11/26	1.056	0.60	0.18	5.0	12/1/27	1.028	1.028	Easton-in-Gordano, Som.
10	"	R. E. Turner	4/11/26	1.067	0.69	0.20	6.2	30/12/26	1.028	1.028	Dymock, Glos.
11	"	F. Hill	7/11/26	1.070	0.70	0.24	5.1	16/2/27	1.028	1.028	Kittisford, Som.
12	"	H. G. Jones	9/11/26	1.062	0.64	0.18	6.0	30/12/26	1.028	1.028	Blakemere, Her
CLASS 2.—SHARP VARIETIES—											
13	Perthvres	G. Breakwell	25 10 26	1.057	0.49	0.14	8.0	15 11 26	1.030	1.021	Rockfield, Mon.
14	Bean Rose	S. P. Taylor	7.11.26	1.060	0.73	0.29	10.6	22.11.26	1.030	1.022	Dymock, Glos.
15	Fair Maid of Devon	F. Hill	22/10/26	1.055	1.09	0.12	6.0	19/11/26	1.030	1.028	Kittisford, Som.
16	Frederick	G. Breakwell	25/10/26	1.051	1.17	0.07	8.1	11/11/26	1.030	1.028	Rockfield, Mon.
17	Dymock Red	R. E. Turner	18/10/26	1.055	0.68	0.26	5.7	26/11/26	1.030	1.029	Dymock, Glos.
18	Stoke Red Stripes	H. H. Sealey	1/11/26	1.053	0.65	0.26	6.5	26 11/26	1.030	1.029	Rodney Stoke, Som.
19	Lambrook Pippin	R. J. Denning	20/11/26	1.050	0.72	0.24	5.0	21/12/26	1.030	1.029	Ilminster, Som.
20	Hartisan	W. Hunt	24/11/26	1.050	0.99	0.13	5.5	27 12/26	1.030	1.029	Easton-in-Gordano, Som.
21	Breakwell's Seedling	G. Breakwell	8/10/26	1.034	0.65	0.14	4.0	13/10/26	1.030	1.030	Rockfield, Mon.
22	Buttery Door	H. E. R. Warren	18/10/26	1.046	0.77	0.14	6.6	6 11 26	1.030	1.030	Netherbury, Dorset.
23	Frederick	S. S. W. Mullins	22 10 26	1.052	1.15	0.09	7.0	26 11 26	1.030	1.030	Raglan, Mon.
24	White Spice	W. Hunt	5/11/26	1.048	0.71	0.11	3.2	18/12/26	1.030	1.030	Easton-in-Gordano, Som
25	Gatcombe	W. Butler	15/11/26	1.053	0.70	0.08	3.8	27/12/26	1.030	1.030	Long Ashton, Som.
26	Lambrook Pippin	E. W. Dabinett	20 11 26	1.067	0.86	0.39	4.7	10.1.27	1.030	1.030	Kingweston, Som.
27	Golden Ball	J. Bowditch	24/11/26	1.045	0.63	0.15	3.2	30/12/26	1.030	1.030	Stoke Abbott, Dorset.

CLASS 3.—SWEET VARIETIES—

28	Bunch Jersey	..	E. W. Dabinett	..	22/10/26	1.046	0.32	0.08	9.7	8/11/26	1.025	1.017	Kingweston, Som.
29	Green Bittersweet	..	"	..	22/10/26	1.052	0.26	0.15	6.6	15/11/26	1.025	1.019	"
30	Bunch Jersey	..	W. Wyatt	..	20/10/26	1.048	0.33	0.09	8.0	12/11/26	1.025	1.020	"
31	Woodbine	..	R. J. Denning	..	7/11/26	1.053	0.32	0.15	11.0	24/11/26	1.025	1.023	Ilminster, Som.
32	Spotted White	..	W. Wyatt	..	18/10/26	1.049	0.24	0.14	9.0	8/11/26	1.025	1.024	Kingweston, Som.
33	Berkley Pippen	..	V. J. Davis	..	1/11/26	1.058	0.20	0.15	7.5	28/11/26	1.025	1.025	Perkeley, Glos.
34	Sweet Alford	..	H. Lee	..	25/10/26	1.051	0.21	0.13	3.0	22/12/26	1.025	1.025	Broadclyst, Devon.
35	Woodbine	..	F. Hill	..	7/11/26	1.060	0.28	0.16	4.8	28/12/26	1.025	1.025	Kittisford, Som.

CLASS 4.—BITTERSWEET VARIETIES—

36	Dabinett	..	G. H. Sawtell	..	18/10/26	1.047	0.29	0.21	6.6	15/11/26	1.025	1.024	Kingweston, Som.
37	Royal Wilding	..	F. Pole	..	20/10/26	1.058	0.24	0.21	6.4	17/11/26	1.025	1.024	Holmer, Her.
38	Dove	..	H. E. Dabinett	..	5/11/26	1.047	0.29	0.25	3.7	7/1/27	1.025	1.024	Sonerton, Som.
39	Dabinett	..	W. B. Gent	..	5/11/26	1.054	0.22	0.21	5.2	14/12/26	1.025	1.024	Muchelney, Som.
40	Tremayne Bitter	..	H. Lee	..	25/10/26	1.057	0.33	0.30	5.0	31/12/26	1.025	1.025	Broadclyst, Devon.
41	Red Jersey	..	R. J. Denning	..	1/11/26	1.049	0.25	0.30	3.2	25/12/26	1.025	1.025	Ilminster, Som.
42	Dabinett	..	R. A. Clarke	..	5/11/26	1.054	0.27	0.32	6.0	23/12/26	1.025	1.025	Chiselborough, Som.
43	Dabinett	..	J. H. Symes	..	9/11/26	1.053	0.19	0.20	4.6	12/1/27	1.025	1.025	Martock, Som.
44	Dabinett	..	Scott and Gent	..	7/11/26	1.055	0.21	0.24	6.3	28/12/26	1.025	1.025	East Lambrook, Som.
45	Belle Norman	..	W. R. Williams	..	25/11/26	1.052	0.20	0.27	3.6	13/1/27	1.025	1.025	Hampton Bishop, Her.
46	Strawberry Norman	..	"	..	25/11/26	1.051	0.34	0.32	4.2	11/1/27	1.025	1.025	"
47	Cummy Norman	..	"	..	25/11/26	1.046	0.34	0.29	3.6	18/12/26	1.025	1.025	"

CLASS 5.—MIXED VARIETIES—

48	Unnamed Local Varieties	Clinch & Goddard	15/11/26	1.051	0.44	0.29	8.3	6/12/26	1.025	1.022	Upton-on-Severn, Wor.
49	Striped Norman, Jerseys, Local Varieties	G. H. Sawtell	18/10/26	1.053	0.43	0.15	8.6	10/11/26	1.025	1.023	Kingweston, Som.
50	Maynards Bitter-sweet, Cap of Liberty, Pound Apple, Dorchester Red Streak	W. Maynard	1/11/26	1.055	0.47	0.19	7.4	22/11/26	1.025	1.023	Martock, Som.
51	Unnamed Local Varieties	Scott and Gent	5/11/26	1.051	0.39	0.24	5.5	14/12/26	1.025	1.023	East Lambrook, Som.

TABLE I.—*continued.*

COMPETITION VARIETIES.

No.	Name of Variety.	Name of Grower.	Date of making.	Specific Gravity of Fresh Juice.	Malic Acid per cent.	Tannin per cent.	Rate of fermentation at 25°C	Date of Filtering.	Specific Gravity at time of May, Filtering, 1927.	Specific Gravity.	District where grown.
CLASS 5.—MIXED VARIETIES— <i>continued.</i>											
52	Woodbine, Hang-down, Sheep's Nose, Taunton Bitter	F. Hill ..	22/10/26	0.057	0.63	0.14	7.2	22/11/26	1.025	1.024	Kittisford, Som.
53	Unnamed Local Varieties	R. E. Turner ..	1/11/26	1.053	0.55	0.21	8.2	19/11/26	1.025	1.024	Dymock, Glos.
54	Broadleaves, Cap of Liberty, Woodbine, Red Jersey	R. J. Denning ..	1/11/26	1.031	0.46	0.19	6.7	27/11/26	1.025	1.024	Ilminster, Som
55	Woodbine, Fair Maid, Improved Bittersweet, Hangdown	S. Cursons ..	1/11/26	1.061	0.29	0.14	6.0	7/12/26	1.025	1.024	Dunsford, Devon.
56	Sour Hangdown, Sweet Blenheim, Loyal Drain, Truckle, Dove	H. C. Jennings ..	25/10/26	1.050	0.30	0.16	4.7	30/11/26	1.025	1.025	Shapwick, Som.
57	Brown's Apple, Bickington Grey, Pocket Apple, Kingston Bitter	J. Hoare ..	1/11/26	1.056	0.56	0.16	5.6	14/12/26	1.025	1.025	Staverton, Devon
58	Dabinett, Cap of Liberty, Profit ..	R. A. Clarke ..	1/11/26	1.053	0.47	0.22	6.7	1/12/26	1.025	1.025	Chiselborough, Som.

59	Pound Apple, Ponsford, Fair Maid, Sweet Coppin, Sweet Alford	H. Lee ..	25 10 26	1.054	0.57	0.15	5 6	1 12/26	1.025	1.025	1.025	Broadclyst, Devon
60	Loyal Drain, Horner, Red Streak...	H. E. Dabinett ..	5/11 26	1.048	0.59	0.34	5.7	14 12/26	1.025	1.025	1.025	Somerton, Som.
61	Unnamed Local Varieties	S. S. W. Mullins ..	5/11 26	1.053	0.44	0.21	5.7	10 12/26	1.025	1.025	1.025	Raglan, Mon.
62	White Norman, Strawberry Nor-man, Hagloe Crab, Bastard Foxwhelp, Red Streak	H. G. Jones ..	9/11/26	1.056	0.41	0.24	5.4	16/2/27	1.025	1.025	1.025	Blakemere, Her.
63	Horner, Sharp Apple, Dabinett, Never Blight	J. H. Symes ..	9 11 26	1.054	0.44	0.20	3.8	21/1/27	1.025	1.025	1.025	Martock, Som.
64	6 Unnamed Local Varieties	B. Pearce ..	15 11 26	1.048	0.76	0.24	4 8	24 12 26	1.025	1.025	1.025	Winford, Som.
65	Unnamed Local Varieties	J. Bowditch ..	24 11/26	1.060	0.51	0.14	6.7	22/12/26	1.025	1.025	1.025	Stoke Abbott, Dorset.
66	Unnamed Local Varieties	J. Bowditch ..	24/11 26	1.049	0.52	0.14	3.7	29 12 26	1.025	1.025	1.025	Stoke Abbott, Dorset.
67	Sams Crab and White Norman	W. R. Williams ..	25 11/26	1.054	0.27	0.24	3.6	12 1/27	1.025	1.025	1.025	Hampton Bishop, Her.
CLASS 6.—PERRIES—												
68	Longdon	Clinch & Goddard ..	15.11.26	1.045	1.06	0.15	5.0	18/12 26	1.030	1.028	1.028	Upton-on-Severn, Wor.
69	Taynton Squash	H. Knight ..	13/10/26	1.051	0.41	0.08	6.2	13.11 26	1.030	1.030	1.030	Huntley, Glos.
70	Ingstone	H. Knight ..	25/10/26	1.050	0.43	0.16	5.2	30/11/26	1.030	1.030	1.030	" "
71	Blakeney Red	R. E. Turner ..	18/10/26	1.049	0.55	0.13	2.8	21 12 26	1.030	1.030	1.030	Dymock, Glos.
72	Huffcap	R. E. Turner ..	18.10/26	1.055	0.44	0.33	2.5	27.1/27	1.030	1.030	1.030	" "
73	Oldfield	F. Pole ..	20/10/26	1.063	0.86	0.25	4.2	16/2/27	1.030	1.030	1.030	Holmer, Her.
74	Blakeney Red	S. S. W. Mullins ..	22/10/26	1.046	0.47	0.09	6.6	22/10/26	1.030	1.030	1.030	Raglan, Mon.
75	Butt	H. A. Lane ..	15/11/26	1.057	0.96	0.43	3.1	23/2/27	1.030	1.030	1.030	Chaceley, Wor.

TABLE I.
COMPETITION CIDERS, 1926-27.
JUDGES AWARDS.

<i>Class 1.</i>			No.*	KINGSTON BLACK. (12 <i>Entries</i>).
First Prize	..	..	11	F. Hill, Kittisford, Somerset.
Second Prize	..	..	4	R. J. Denning, Ilminster, Somerset.
Third Prize	..	..	5	H. E. Dabinett, Somerton, Somerset.
Reserve ..	..	..	10	R. E. Turner, Dymock, Gloucester.
<i>Class 2.</i>				SHARP VARIETIES. (15 <i>Entries</i>).
First Prize	..	..	18	H. H. Sealey, Rodney Stoke, Somerset.
Second Prize	..	..	17	R. E. Turner, Dymock, Gloucester.
Third Prize	..	..	27	J. Bowditch, Stoke Abbott, Dorset.
Reserve ..	..	..	20	W. Hunt, Easton-in-Gordano, Somerset.
Highly Commended	..	..	19	R. J. Denning, Ilminster, Somerset.
<i>Class 3.</i>				SWEET VARIETIES. (8 <i>Entries</i>).
First Prize	..	..	34	H. Lee, Broadclyst, Devon.
Second Prize	..	..	33	V. J. Davis, Berkeley, Gloucester.
Reserve ..	..	..	35	F. Hill, Kittisford, Somerset.
Highly Commended	..	..	31	R. J. Denning, Ilminster, Somerset.
<i>Class 4.</i>				BITTERSWEET VARIETIES. (12 <i>Entries</i>).
First Prize	..	..	45	W. R. Williams, Hampton Bishop, Hereford.
Second Prize	..	..	37	F. Pole, Holmer, Hereford.
Third Prize	..	..	43	J. H. Symes, Martock, Somerset.
Reserve ..	..	..	41	R. J. Denning, Ilminster, Somerset.
Highly Commended	..	..	44	Scott and Gent, East Lambrook, Somerset.
Commended	..	..	38	H. E. Dabinett, Somerton, Somerset.
<i>Class 5.</i>				MIXED VARIETIES. (20 <i>Entries</i>).
First Prize	..	..	62	H. G. Jones, Blackmere, Hereford.
Second Prize	..	..	57	J. Hoare, Staverton, Devon.
Third Prize	..	..	55	S. Cursons, Dunsford, Devon.
Reserve ..	..	..	56	H. C. Jennings, Shapwick, Somerset.
Highly Commended	..	..	63	J. H. Symes, Martock, Somerset.
Commended	..	..	50	W. Maynard, Martock, Somerset.
Commended	..	..	59	H. Lee, Broadclyst, Devon.
Commended	..	..	67	W. R. Williams, Hampton Bishop, Hereford.
<i>Class 6.</i>				PERRIES. (8 <i>Entries</i>).
First Prize	..	..	74	S. W. Mullins, Raglan, Monmouth.
Second Prize	..	..	69	H. Knight, Huntley, Gloucester.
Reserve ..	..	..	73	F. Pole, Holmer, Hereford.
Highly Commended	..	..	71	R. E. Turner, Dymock, Gloucester.

* The numbers stated refer to the ciders described under the corresponding numbers in Table I.

Some of the entries deserve special mention, as the varieties had not been tried previously for cider-making at Long Ashton. In Class II (sharp varieties), No. 18, Stoke Red Stripes produced a cider of very high merit, which was awarded first prize in the competition. The orchard where this apple grows has been visited. As the trees are exceptionally good growers and croppers, this variety promises to be worthy of a place amongst the best sharp cider apples. No. 20, Hartisman, produced a good clean sharp cider. No. 21, Breakwell's Seedling, is an early apple without

any merit for cider. No. 22, Buttery Door, gave a fair cider with an aromatic flavour, but the rate of fermentation is too high. No. 24, White Spice, produced a sharp cider without much character. No. 27, Golden Ball, seems a very useful cider apple, the resulting cider being good with a clean brisk and pleasant flavour.

In Class III (sweet varieties), Nos. 28 and 30, Bunch Jersey, from the same district, gave very fair sweet ciders. The same cannot be said of No. 29, Green Bittersweet, which was rather inferior. No. 32, Spotted White, gave a sweet cider of indifferent value. No. 33, Berkeley Pippin, proved to be a very useful sweet cider apple, but the rate of fermentation of the juice is on the high side.

In Class IV (bittersweet varieties) the two first, Dabinett and Royal Wilding, are well known as two of the best apples in the bittersweet group. No. 38, Dove, produced a very fair cider without much character. No. 40, Tremayne Bitter, was rather coarse and too bitter in flavour to be used unblended. No. 41, Red Jersey, was also on the bitter side, but otherwise a very fair cider. No. 45, Belle Norman, gave a very good clean flavoured cider with a nice bouquet.

With regard to Class V (mixed varieties), it may be said on the whole that in many cases the blends of apples selected for individual entries were very well chosen to produce a cider in which the constituents were well balanced. A few of them, as for instance No. 64, were too sharp in flavour and would have been better if a smaller proportion of sharp apples had been used ; but in most cases the acid and tannin figures were very near those found in the best types of cider.

In Class VI (Perries) No. 68 was much too sharp with an acidity of over one per cent. ; otherwise the flavour was quite good. No. 70, Ingstone, produced a fair perry without much aroma. The other varieties, which have been tried on former occasions, were on the whole not up to the usual standard.

SINGLE VARIETY TRIALS.

Besides the competitions some other varieties were sent in for trial (Table II). Of these the following have not been tried before. No. 77, Kings Favourite, produced a very sharp cider with a good colour and a clean, sharp flavour ; this apple is too sharp for use alone, but appears very useful for blending with sweet and bitter-sweet varieties. No. 78, Browns Apple, is a sharp apple of very good quality ; the cider had a very nice flavour and a rich colour and could be used alone, although the acidity is rather high. No. 81, Red Wilding, gave a bittersweet cider of no great distinction.

TABLE II.
MISCELLANEOUS SINGLE VARIETY CIDERS.

In each case the pomace was pressed immediately after milling, and the juice allowed to ferment naturally in cask until the specific gravity had dropped to 1.025—1.035 in the average case, when the liquor was filtered.

No.	Name of Variety.	District where grown.	Date of making.	Specific Gravity of Fresh Juice.	Malic Acid per cent.	Tannin per cent.	Rate of fermentation at 25°C.	Date of Filtering.	Specific Gravity May, 1927.	Remarks.
76	Kingston Black	.. Elmore, Glos.	.. 1/11/26	1.061	0.64	0.16	7.0	16/12/26	1.029	Sharp Variety.
77	Kings Favourite	.. Melplash, Dorset	.. 15/11/26	1.053	0.96	0.12	3.7	13/12/26	1.030	" "
78	Browns Apple	.. Staverton, Devon	.. 1/11/26	1.054	0.72	0.12	3.2	6/12/26	1.034	" "
79	Medaille d'Or	.. Byford, Her.	.. 15/10/26	1.048	0.23	0.35	11.0	29/10/26	1.021	Bittersweet Variety.
80	Cherry Norman	.. Moorhampton, Her.	.. 14/10/26	1.050	0.27	0.25	6.0	17/11/26	1.026	" "
81	Red Wilding	.. " "	.. 15/10/26	1.054	0.31	0.26	5.0	27/11/26	1.026	" "

PURE YEAST FERMENTATION TRIALS.

Experiments with the fermentation of pasteurised juice with pure yeasts were continued. The juice was passed through the "Salvator" pasteuriser, where it reaches a maximum temperature of 160° F., and afterwards inoculated with a culture of pure yeast. Ten hogsheads were filled with the pasteurised juice, and a further cask with the natural, unpasteurised juice as a control. The yeasts used were the following, the name in brackets indicating the cider or wine from which the yeast has originally been isolated :

- No. 6 (Kingston Black, 1912).
- No. 27 (Johannesberg).
- No. 32 (Steinberg).
- No. 37 (Riesling).
- No. 41 (Danish Cider).
- No. 42 (Port).
- No. 43 (Petro Zimenez).
- No. 44 (Champagne).
- No. 45 (Champagne).
- No. 46 (Port).

All the samples were filtered when the specific gravity had fallen to approximately 1.025. The filtering dates in the Table III show how much slower the fermentation proceeded in the pasteurised samples than in the naturally fermented control. On different occasions during the summer the "pure yeast" samples were compared with the control, and it was found that the flavours varied appreciably. Whereas the two first, namely Nos. 83 and 84, were judged to be a little inferior to the control, the rest of the samples were preferred to the control by most judges, Nos. 90 and 92 especially being considered distinctly superior in flavour and character.

TABLE III.
EXPERIMENTS WITH PASTEURISED CIDERS.

Ciders made from juices pasteurised at 160° Fah. immediately after milling and fermented with pure yeasts.

No.	Name of Variety.	District where grown.	Date of making.	Specific Gravity of Fresh Juice.	Malic Acid per cent.	Tannin per cent.	Rate of fermentation at 25°C.	Date of Filtering.	Specific Gravity May, 1927.	Remarks.
82	Mixed Apples	..	..	..	..	..	3.0	21/1/27	1.024	Control (fermented naturally)
83	"	"	..	"	"	"	"	9/3/27	1.024	Fermented with yeast No. 6
84	"	"	..	"	"	"	"	9/3/27	1.025	"
85	"	"	..	"	"	"	"	5/3/27	1.024	"
86	"	"	..	"	"	"	"	19/3/27	1.025	"
87	"	"	..	"	"	"	"	21/3/27	1.025	"
88	"	"	..	"	"	"	"	21/3/27	1.024	"
89	"	"	..	"	"	"	"	11/3/27	1.024	"
90	"	"	..	"	"	"	"	21/3/27	1.025	"
91	"	"	..	"	"	"	"	11/3/27	1.025	"
92	"	"	..	"	"	"	"	10/2/27	1.024	"

STRAWBERRY INVESTIGATIONS.*Progress Report.*

The series of investigations on strawberries at present in progress at this Station date back from 1921, when reports were received from some of the more important strawberry growing districts in the South of England, on the serious nature of the so-called "Red Plant" disease of strawberries.

Since that time strawberry investigations have formed a very prominent section of the work of the Institute and this has been especially so during the seasons 1925 to 1927.

From the earlier work, it soon became evident that the problems involved in connection with the causes of strawberry failures were both numerous and complex and that their solution called for a very extensive programme of investigations.

A large and comprehensive programme of work was accordingly drawn up which, while relating mainly to the pathological aspects of the more important "abnormal" forms of plants occurring in cases of failures, also included studies in connection with pomological features, physiology and nutrition. More recently, also, it has been considered desirable to extend the programme of the strawberry breeding work to include in it the breeding of new varieties for certain specific purposes.

During the course of the work, a number of papers have been written by members of the staff responsible for the various aspects of the work, in which the more important findings which have emerged from the investigations have been recorded. A list of these is appended.

Reference to these published reports will indicate the scope of the programme and the amount of progress made since the initiation of the work. It will be seen that it was necessary, at the outset, to carry out an elaborate series of investigations on the growth cycle of the normal strawberry plant in order to provide a sound basis from which to view the numerous problems which presented themselves relating to the "abnormal" forms of plants requiring consideration.

Various points relating to cultural practices and the effects of these on the plant were investigated, the more important points which were examined being times and methods of planting, methods of taking runners, the relation between vigour of parent and progeny, "strains," "rogues," crown damage, root damage, waterlogging, etc.

It has been shown that many of these points are of great importance in considering the present problems of the strawberry grower and that some of them require special consideration in the study of certain of the prevalent "abnormal" forms of plants.

In the investigations dealing directly with questions of strawberry pathology, attention was focussed in the first stages on the types of plants known as "Red Plant," "Cauliflower," "Patch" and "Small Leaf." The possibility of these forms being different phases of a common trouble, was studied and experiments were carried out to determine whether the eelworm *Aphelenchus fragariae* was the organism responsible in producing these types. While these investigations were in progress attention was also given to the problem of the control of "Red Plant." The possibility of the transmission of the "disease" from the parent, through the runner, was studied with the object of ascertaining whether a suitable measure of control could be obtained by applying "roguing" methods in propagation beds. The evidence obtained showed that there was a very strong possibility of "Red Plant" being substantially controlled by such methods.

During the course of examining the more prevalent forms of "abnormal" plants, it became evident that one form of "Small Leaf" was associated with infestations of the aphid *Capitophorus fragariae*, and infection experiments were accordingly carried out on healthy plants with this aphid. It was found that the particular form previously observed resulted from the infections, and it appeared that the form could be attributed to attacks of this pest. Since then the relation between this type of plant and infestations of the aphid have been widely studied in the field in all the larger strawberry growing areas of the country and it has become evident that the pest is causing very widespread damage.

As knowledge of abnormal forms has accumulated it has become necessary to attempt to describe the distinguishing features of the various forms and to record the possible order of relationships between some of them, together with the various methods by which they may be produced, the conditions under which they most frequently occur and the organisms considered most likely, on the evidence available, to be responsible for their production. The grouping is tentative but, since it serves to summarise the present state of knowledge on the various abnormal forms, the details are listed and discussed in a later section.

Results from the work on the nutrition of the strawberry plant will only emerge very slowly in view of the present position with regard

to the various abnormal forms and the very nature of the problems involved. The strawberry crop is greatly influenced by climatic conditions and, for this reason alone, it is not safe to draw conclusions from manurial experiments on strawberry plants unless the experiments are carried out over a fairly large number of seasons.

The grower's problem of manuring his crop is also a very special one in that in some districts it is not possible, in the majority of cases, to grow the crop in a rotation which allows of a number of years between successive plantings of it. The grower, too, is often not a general farmer and having no considerable head of stock, must rely solely or largely on fertilisers to feed his plants. Thus his problems can only be properly appreciated by following the effects of various manurial treatments over several successive plantings on the same piece of land. This is the method which has been adopted at Long Ashton and hence no attempt will be made to draw final conclusions for many years, though the results will be recorded periodically in progress reports.

INVESTIGATIONS IN PROGRESS.

(a) *Pomological.*

Strain Trials.—As mentioned in a previous report, trials of strains of Royal Sovereign, obtained from representative growers at Cheddar, are being carried out. These strains were first planted at Long Ashton in 1923. Since that date a limited number of runners have been planted annually from maidens of each strain. Thus each strain is being maintained over a number of years. The first and second generations of these strains have each borne three crops, the third generation two and the fourth one crop. For various reasons such as variation in time of planting from year to year, variation in site and soil texture of the location of each generation and annual variation in weather conditions it is probably best to express the comparative results of cropping by showing the maximum crop produced in one season by each generation of every strain as 100, the crop from the remaining strains being shown in proportion.

TABLE I.

Strain No.	1st Generation			2nd Generation			3rd Generation		4th Generation
	1924	1925	1926	1925	1926	1927	1926	1927	1927
1	60.75	61.75	39.25	100	60	42	43.25	100	100
2	76.5	100	100	91.5	100	100	100	97.25	80
3	68	84.25	67.5	66.5	68.9	59	62.75	77.25	80
4	50.25	71	60	65.9	70	44	69	59.75	80
5	76	69	62.5	57.5	76	72	91.75	66.25	67
6	100	80	35.5	28.5	44.5	23.3	53	53.75	54
7				32.5	57	24.5	61.75	50	50

The most striking feature of this table is perhaps the consistently good performance of strain 2 throughout. It is understood that this strain has been selected constantly, over a period of many years, by the grower who employs the utmost care in the selection of his plants and runners.

At first sight the remaining strains are striking mainly on account of their apparent inconsistency. On close examination, however, a few, at least, of these inconsistencies seem explicable. For instance, referring to Table I., in strain 1. the crop in 1924 was poor. It is reasonable to suppose that because of this the runners were at least better than had the crop been very heavy; and this is borne out by the fact that these runners, planted in the autumn of 1924, cropped well in 1925. To carry this a step further, runners taken after this heavy crop in 1925 fruited poorly in 1926 and, again, runners taken after this poor crop fruited well in 1927. With strain 6, which cropped so well in its first year, it is notable that runners taken after this heavy crop did badly.

No attempt was made prior to 1926 to select runners from particular parents within each strain. Table II. indicates the order of merit in cropping of several strains together with figures showing the incidence of "Red Plants," the strain containing the *smallest* number of "Red Plants" being indicated in each case by the numeral 1, etc. Figures are not available for strain 1, so this has been omitted. It will be seen that the order of merit both in cropping and in "Red Plant" infection is fairly close indicating, as would be expected, that the proportion of "Red Plant" in a strain bears very definitely on the cropping of that strain.

TABLE II.

Strain No.	1st Generation 1926		2nd Generation 1926		3rd Generation 1926		4th Generation 1927	
	Crop O.M.	Red P. O.M.	Crop O.M.	Red P. O.M.	Crop O.M.	Red P. O.M.	Crop O.M.	Red P. O.M.
2	1	1	1	1	1	2	1	1
3	3	4	4	5	4	5	1	5
4	1	2	3	2	3	1	1	1
5	4	3	2	3	2	3	4	3
6	5	5	6	6	6	6	5	6
7	—	—	5	4	5	4	6	4

An attempt is now being made to eliminate "Red Plant" completely from all these strains and an examination of their relative cropping capacity will be made, using only completely healthy plants if possible.

Further work is in hand on strains and strain selection, plants having been obtained from various sources for the purpose. Information is being collected as to their relative merits, but until various pathological troubles have been overcome, progress will necessarily be very slow.

Varieties.—A grouping of varieties according to their botanical characters has been commenced. The variety collection at the Station is moderately large and will be increased as required, but here again pathological troubles make it futile at the present stage to carry out anything in the nature of cropping trials. However, records are being kept of the relative susceptibility of varieties to various diseases.

Among less well known varieties which have been under observation for the past two seasons, Tardive de Leopold stands out at present for its vigour and apparent resistance to disease. It is a late variety, bearing a heavy crop of large fruit, which appears to be of somewhat better quality than Madame Kooi. It has, however, one important difference from most varieties grown in this country in that very few of the flowers bear stamens, and for this reason a late flowering variety should be planted with it for purposes of pollination.

Clones.—The initial work on clones was commenced in 1925, in connection with investigations relating to strains, and the normal development of the strawberry plant referred to in other sections of this report. Since then it has been extended to certain aspects of the pathological problems under examination.

The progenies of individual strong and weak parents and of individual healthy and diseased parents are under observation. Results show that "Red Plant" crowns produce "Red Plant" runners. Some plants may have only one "Red Plant" crown, and it is believed that runners formed from healthy crowns on such plants may remain healthy. Runners from aphid infested plants are generally aphid infested, as is mentioned in more detail elsewhere in this report. The variations, if any, in transmission of vigour from parent to runner are difficult to trace due to the prevalence of pathological troubles.

(b) Breeding Investigations.

During the course of the investigations on the pathology of the strawberry, it has been noted that the four varieties Aberdeen

Standard, Dumbarton Castle, Sturton-Cross and Tardive de Leopold appear to show marked resistance to attacks of the aphid, *Capitophorus fragariae*. In view of this, these varieties have been used as parents, selfed—in the first three cases—and in crosses with the susceptible varieties, Royal Sovereign and Stirling Castle, in an attempt to obtain new resistant varieties with commercial qualities equal to those of the latter two varieties.

(c) *Manurial Experiments.*

There are two manurial experiments in progress. It is proposed to continue both of these over several successive plantings, the plots to be replanted at intervals of three years. The variety used in each experiment is Royal Sovereign.

The older of the two series was planted on the first occasion in April, 1924, and for the second time in July, 1926, so that there are available records for one complete cycle.

There are eight differential manurial treatments given, each treatment being in triplicate, and each plot is one-sixtieth of an acre in extent. The plants are planted out in rows 30 inches apart with the plants spaced at intervals of 18 inches in the rows.

The object of the experiment is to compare various systems of manuring with organic and inorganic fertilisers with systems involving the use of dung. The effect of omitting potash from the fertiliser where dung is not given is also under test. In all cases where nitrogen, phosphorus and potassium are given in different manures, the amounts of these elements are comparable. Where dung is applied an attempt has been made to apply this at a rate calculated to supply readily available nitrogen at rates similar to those given in the fertilisers. For the present the rates of manures applied are designedly low as it is proposed to raise these as is found desirable in the later plantings.

The details of the manurial treatments are as follows :—

Treatment.

- A. Dung at 20 tons per acre, ploughed in previous to planting to serve over three year period.
- B. Dung at 10 tons per acre, ploughed in previous to planting.
Annual Spring Dressing :—
Sulphate of Ammonia to supply 20 lbs. nitrogen per acre.
Superphosphate " " 150 " total phosphate per acre.
Sulphate of potash " " 50 " K₂O per acre.
- C. Shoddy at 2 tons per acre (5% nitrogen basis) ploughed in previous to planting.

- Annual Spring Dressing :—
 Steamed Bone Flour to supply 150 lbs. total phosphate per acre.
 Sulphate of Potash „ „ 50 „ K₂O per acre.
- D. Complete Manure (non-bulky but nitrogen and phosphorus in organic form).
 Annual Spring Dressing :—
 Hoof and Horn or Dried Blood to supply 40 lbs. N. per acre.
 Steamed Bone Flour „ „ 150 „ total phosphate per acre.
 Sulphate of Potash „ „ 50 „ K₂O per acre.
- E. Complete Manure—Inorganic Materials.
 Annual Spring Dressing :—
 Sulphate of Ammonia to supply 40 lbs. N. per acre.
 Superphosphate „ „ 150 „ total phosphate per acre.
 Sulphate of Potash „ „ 50 „ K₂O per acre.
- F. "Organic" Manure containing nitrogen and phosphorus.
 (No potassium given).
 Annual Spring Dressing :—
 Hoof and Horn or Dried Blood } as D.
 Steamed Bone Flour }
- G. Dung at rate of 12 tons per acre ploughed in previous to planting.
 Dung at 8 tons per acre in spring following first crop—material allowed to rot on surface.
- H. Control, no manure.

The data obtained relate to growth characters, incidence of disease, mortality, and cropping—total crop, marketable crop and quality of berries are recorded.

For the first planting, four "strains" of Royal Sovereign were obtained from commercial growers to test the necessity or otherwise of building up a stock from a common source for this work. The strains showed great differences in behaviour both as regards growth characters and cropping.

The results for cropping show that the three dung treatments given—A, B, G—produced much higher yields than the various treatments with the organic and inorganic fertilisers.

In view of the significant differences found between strains in this experiment and in the second series described below, a stock of a single "strain" is being used in all future plantings.

The younger series of plots has been commenced with a view to investigating in detail the effects of deficiencies of nitrogen, phosphorus and potassium. There are six manurial treatments given and the treatments are in triplicate. Each plot is one-sixtieth of an acre in extent. The first planting was carried out in September, 1924, when five strains were used, and the second planting was made in August, 1927, using plants of a single "strain." The records taken are similar to those in the other series.

As in the case of the previous experiment, the rates of manures applied are designedly low, but the rates on the fertiliser plots are to be raised for the second planting.

In the initial scheme the dressings were as follows :—

Treatment.

- O. Dung at 20 tons per acre, ploughed in previous to planting to serve over three year period.
- K. Complete Manure—Annual Spring Dressing :—
 Nitrate of Soda to supply 40 lbs. N. per acre.
 Superphosphate " " 100 " total phosphate per acre.
 Sulphate of Potash " " 50 " K₂O per acre.
- L. As K. but omit nitrate of soda.
- M. As K. but omit superphosphate.
- N. As K. but omit sulphate of potash.
- J. Control—no manure.

The growth and cropping records over the first planting again showed marked differences for the various strains and also showed that variations in growth are likely to occur due to soil variations as growth and cropping on a strip of land running across the plots have differed markedly from the remainder of the area irrespective of differential manurial treatments.

The cropping records in this series also show higher yields from the dung treatment than from the complete fertiliser treatment. No significant results have been obtained to date from the various omissions.

(d) Pathology.

Abnormal Forms of Strawberry Plants.—In pursuing field investigations on the various forms of abnormal plants which occur, the problems have been rendered exceedingly complex owing to the fact that frequently one plant shows characteristic symptoms of more than one trouble. This fact seemed likely to lead to confusion of ideas and, in view of this, it was considered desirable for the various workers concerned to agree upon a provisional grouping of the more important abnormal forms.

The details of the grouping are as follows :—

TYPES OF ABNORMAL FORMS.*

TYPE I. "DAMAGED CROWN."†

Crowns weak, numerous and spaced. Petioles long and thin, red in some varieties. Flowers absent. Root development normal.

Cause—Crown damage.

TYPE II. "SMALL LEAF."

Crowns weak, numerous and dense. General colour of plant yellowish green. Petioles short and thickened. Flowers weak. Root development normal but of poor vigour.

Causes—Waterlogging, dessication and cultivation damage.

TYPE III. "CAULIFLOWER."

Crowns hypertrophied or extremely fasciated. Leaves much reduced and deformed. General colour of plant yellowish green. Petioles short and tapered, and varying in colour from beetroot red to pale blue green. Flower absent or resembling a cauliflower. Root development normal in form but poor in vigour.

Cause—*Aphelenchus*?

TYPE IV. "RED PLANT."

Crowns few and spaced. Leaves reduced and deformed and in some varieties red in colour. Petioles tapered and beetroot red in colour. Flower reduced or dead and not outwardly visible. Root development normal.

Cause—*Aphelenchus*?

TYPE V "APHIS" PLANT.

Crowns weak, numerous and dense. General colour of plant yellowish green. Leaves crinkled and cupped to normal. Petioles short and thickened. Flowers numerous and weak or absent. Root development, normal in character, but poor in vigour.

Cause—*Capitophorus fragariae*.

TYPE VI. "PATCH."

Characters are either as for Type II., Type V. or show features of both with the exception that the number of roots produced is poor instead of normal and that dead crowns are present.

Causes—As II or V.

TYPE VII. SUDDEN WILT.

The plant wilts rapidly, usually about the time when the fruit is almost fully formed. It either dries subsequently or becomes a "Small Leaf" type (Type II). Cases of this type have been relatively few in number and have occurred almost entirely in notably wet seasons such as 1924.

Causes—As II; also root feeding insects such as *Melolonthid* and *Curculionid* larvae.

* The above list of types is a shortened version of the table which is given in the article in the Journal of the Ministry of Agriculture (—) and which, after completion, was fully discussed with and agreed upon by the Advisory Officers from the Southampton, Tamar Valley and Clyde strawberry growing districts.

† This form has been frequently referred to by growers as "Miffy."

It will be seen from the list that seven types are distinguished in the present grouping, but it should be mentioned that it appears probable that the number will be reduced to four or five in the future.

It has been shown that Type I. results when the crown of the plant is injured at certain seasons of the year. Type II. is produced when the roots of the plant are injured either by careless cultivation or by dessication or waterlogging. Types III. and IV. are the well known "Cauliflower" and "Red Plant" forms and it seems possible that they represent different stages of the same disease. The evidence as to whether these forms result from attacks of the eelworm *Aphelenchus fragariae* is at present inconclusive. Type V. has been produced experimentally by infection with the strawberry

aphis *Capitophorus fragariae* and all the evidence obtained to date indicates that this pest is the causal organism. Type VI. is the form widely known among growers as "Patch Plant" and it appears almost certain that it represents a more advanced form of Types II. or V. or of both, though there is evidence in some cases that the development of the form is associated with soil factors. The last type has been provisionally given the name of "Sudden Wilt" an expression which is descriptive of the sudden collapse and drying out of the plant which occurs. Little opportunity has been afforded of studying this type in detail to date, since the season of 1924 was the only occasion on which it occurred to an appreciable extent, which suggests that the form may be associated with especially wet conditions.

A SURVEY OF STRAWBERRY TROUBLES.

During the summer of 1927, the strawberry districts of Cheddar, Tamar Valley, Worcester, Hereford, Cheshire, Denbigh, Wisbech, Southampton and Kent were visited with the object of determining the distribution of the more serious strawberry troubles in these important areas. The observations were not confined to the occurrence of diseased forms, special attention being also given to various features of the practices in the areas such as propagation methods, methods of planting, cultural points, etc., and the possible relation of certain of these to the incidence of abnormal growth characters.

The data accumulated during the course of this survey will be reported and discussed in a separate paper at a later date.

"RED PLANT" AND "CAULIFLOWER" DISEASES.

The physiological anatomy of plants showing the characters of "Red Plant" and "Cauliflower" diseases is under investigation. In this work, the features shown by the "diseased" plants are compared with those exhibited by plants showing normal characters. Particular attention has been given to plants showing the first stages of the diseases and, concurrently with the anatomical work, the incidence of *Aphelenchus fragariae* has been determined.

The more recent observations on the occurrence of *Aphelenchus fragariae* in strawberry plants have raised considerable doubt as to whether this pest is the causal organism of "Red Plant" and "Cauliflower" or one merely associated with such pathological forms, and have rendered imperative further attempts to induce the

diseases in healthy plants by direct mass infection with the eelworm. Further infection experiments have therefore been commenced in which the eelworms, suspended in water, have been introduced into the leaf axils and growing point regions of healthy plants. In all experiments several infections were made on each plant. Infections of runners from healthy plants have also been attempted by pegging down the young runners at the earliest possible dates in sand contained in pots and watering the sand periodically with suspensions of eelworms in water. Eelworms were also introduced into the axils of the leaves of healthy maiden plants before any runner stolons had appeared and the runners subsequently developed from these were pegged down for examination at a later date. All infected plants have been retained for prolonged periods of observation.

In addition to the above infection experiments, detailed examinations have been made of parent plants, their runner stolons and the runners with a view to determining the distribution of eelworms in these portions of the plants during the period of runner formation.

It is hoped that the above mentioned experiments will provide evidence to enable a decision to be made as to whether *Aphelenchus fragariae* is the cause of "Red Plant" and "Cauliflower" or whether the high numbers of *Aphelenchus fragariae* invariably present in these forms are due to the fact that these types of plants provide especially suitable environmental conditions for the rapid reproduction of the organism.

Since there is a possibility that "Red Plant" is a diseased condition resulting from infection of the healthy plant with a definite virus, inoculations have been carried out in an attempt to transmit the disease from affected plants to healthy plants. The results have been in all cases negative after two seasons observations and, while they do not rule out entirely the possibility of the "disease" belonging to the virus category, they show that it is not likely to be of the type which is transmissible by inanimate objects.

The details of the inoculations were as follows, the variety used in both experiments being Royal Sovereign.

1. *Inoculations with Plant Extracts.*

The extracts were prepared from petioles, leaves and crowns of strawberry plants showing marked "Red Plant" symptoms. The portions of plant were ground up with cold water and squeezed in a muslin bag. The expressed juice was forced through a Chamberland

filter and in this way an extract free from spores and bacteria was obtained. Part of the extract was boiled and used for control experiments. Injections were made into the bases of developing leaves by means of a hypodermic syringe delivering approximately 0.1 c.c. of extract for each inoculation. In all, 142 plants were inoculated by this method—77 two-year old plants and 65 maidens. Control inoculations were made on 134 plants.

2. *Tissue Inoculations.*

For each inoculation a small plug of tissue was cut with a cork borer (diameter 4 m.m.) from the side of a healthy crown and into the hole was inserted a similar plug cut from the crown of a "Red Plant." After the inoculation the wound was immediately covered with grafting. As controls, plants were treated in a similar manner but plugs from healthy crowns were inserted. Forty-seven plants were inoculated in this way—22 maidens and 25 two-year old plants. Forty-six plants were used as controls.

STRAWBERRY APHIS (*CAPITOPHORUS FRAGARIAE*).

In the investigations on strawberry aphid attention has been devoted mainly to infection experiments, which have shown the aphid to be the cause of a type of small leaf plant, and to following the course of aphid attacks in detail on several beds over a period of several seasons in order to determine the stages through which infested plants pass from the time of planting until death. Records taken on several thousand plants show that the "small leaf" stage is produced in the autumn as the result of aphid infection in the previous spring and that these small leaf plants do not recover in spite of the fact that, having reached the small leaf stage, they do not subsequently become infected with aphid. It has been found invariably that on beds containing both healthy and small leaf forms the aphid attacks only the healthy plants.

Experiments with the object of controlling the aphid have been carried out. These have shown that the young plants may be assured a good start free from the pest by dipping the runners before planting, in a solution of nicotine (98 per cent. strength) and soft soap, using the nicotine at the strength of $\frac{1}{2}$ -oz. per 10 gallons of water. Experiments are in progress in which nicotine sprays and dusts are being used to determine suitable methods of controlling the aphid during the later stages in the life history of the plant.

ROOT AND CROWN ROTS.

In a consideration of strawberry root rots, the structure of the normal tissues calls for mention. A strawberry root more than two months old shows a well marked polyderm, a cylinder with alternate layers of starchy and of suberised cells, laid down around the inner margin of the cortex. As the suberisation becomes complete, the cortex is cut off from the vascular tissue of the root and in consequence dies. The dead cortex turns brown, becomes invaded by bacteria and fungi and, as rotting progresses, gradually blackens. Within the discoloured layer, however, the "core" of the root remains white and healthy, the corky layers of the polyderm forming an effective barrier to penetration by bacteria and fungi. It is to be noted that the presence of micro-organisms in the cortex of the roots after the formation of the suberised layer is a normal occurrence, having no adverse effect on the plant.

Pathological symptoms in strawberry roots are (1) the blackening of young roots, i.e., those under two months old, (2) discolouration of the vascular tissue. These symptoms are common in plants suffering from waterlogging, "Patch," "Small Leaf" and "Sudden Wilt." With the possible exception of "Sudden Wilt," the diseased conditions mentioned do not appear to be due primarily to fungal attack. Generally speaking, attempted isolations from discoloured vascular tissue in the roots of such plants are negative: from the cortical tissues of young blackened roots a variety of fungi and bacteria may be obtained, but *Pythium proliferum* and *Diplodina lycopersici* have not been found in any material examined at Long Ashton. It is suggested that the fungi present in rotted roots of "Small Leaf," "Patch" and waterlogged plants follow upon, rather than initiate, the death of the tissues.

The strawberry crown in the normal condition is sheathed with semi-decayed petiole and stipule bases, permeated with mycelium and bacteria, but disease due to invasion of the actual crown tissue by micro-organisms appears to be infrequent. The only type of crown rot due to fungi which has been noted at Long Ashton is an attack by *Armillaria mellea* on plants already enfeebled by age and neglect. The fungus grows upwards from the base of the crown, replacing the host tissue by conspicuous plates and tongues of white mycelium. Identification of the fungus was made on cultural characters, in particular the production of rhizomorphs.

Attempted inoculations have not been successful and there is little doubt that the attack of *Armillaria mellea* on strawberries is

to be looked upon as exceptional. The affected plants at Long Ashton had been grown on newly broken ground near the site of a hedge: under such conditions, it is possible that woody debris attacked by *Armillaria mellea* was present in the soil, and served as a source of infection.

PUBLICATIONS.

- (1) A. H. LEES. "Red Plant Disease of Strawberries." *Agricultural and Horticultural Research Station, Long Ashton. Annual Report, 1921.*
- (2) E. BALLARD and G. S. PEREN. "Red Plant in Strawberries and its Correlation with Cauliflower Disease." *Jour. of Pomol., Vol. 111, p. 142, 1921.*
- (3) E. BALLARD and G. S. PEREN. "Red Plant in Strawberries and its Correlation with Cauliflower Disease." *Agricultural and Horticultural Research Station, Long Ashton. Annual Report, 1923.*
- (4) H. R. BRITON-JONES. "The Purple Leaf Blotch of Strawberry." *Agricultural and Horticultural Research Station, Long Ashton. Annual Report, 1923.*
- (5) A. H. LEES and L. N. STANILAND. "Progress Report on Red Plant of Strawberries." *Agricultural and Horticultural Research Station, Long Ashton. Annual Report, 1924.*
- (6) E. BALL and C. E. T. MANN. "Studies on the Root and Shoot Growth of the Strawberry in Season 1924-25." *Agricultural and Horticultural Research Station, Long Ashton. Annual Report, 1925.*
- (7) L. N. STANILAND. "Some Observations on Strawberry Eelworm." *Agricultural and Horticultural Research Station, Long Ashton. Annual Report, 1925.*
- (8) E. BALL. "A Note on Strawberry Strains." *Agricultural and Horticultural Research Station, Long Ashton. Annual Report, 1925.*
- (9) C. E. T. MANN and E. BALL. "Studies in the Root and Shoot Growth of the Strawberry. I." *Jour. of Pomol. and Hort. Sci., Vol. V, 1926, p. 149.*
- (10) E. BALL. "Some Observations on Red Plant." *Agricultural and Horticultural Research Station, Long Ashton. Annual Report, 1926.*
- (11) E. BALL. "The Correlation between some Characters of Progeny and Parent in the Strawberry." *Ibid. 1926.*
- (12) H. R. BRITON-JONES and L. N. STANILAND. "The Effects of Strawberry Aphid (*Capitophorus fragariae*)." *Jour. of Pomol., Vol. VI, 1927.*
- (13), (14), (15). E. BALL and C. E. T. MANN. "Studies in the Root and Shoot Growth of the Strawberry." II. "The Normal Development in the Second Year." III. "The Influence of the Time of Planting on the Development of the Strawberry." IV. "The Effect of some Cultural Practices on the Normal Development." *Jour. of Pomol. and Hort. Sci., Vol. VI, Part II, 1927.*
- (16) E. BALL, C. E. T. MANN and L. N. STANILAND. "Strawberry Investigations at Long Ashton—I." *Jour. Min. of Agric., Vol. XXXIV, Sept. 1927*
- (17) E. BALL, C. E. T. MANN and L. N. STANILAND. "Strawberry Investigation at Long Ashton—II." *Ibid. Oct. 1927.*

*THE RELATIONS OF SCION AND ROOTSTOCK.**I. Tree size in relation to scion and rootstock.**(a) The case of young trees.*

By B. T. P. Barker.

Since the investigations on the various forms of apple rootstocks were begun jointly by the East Malling and Long Ashton Research Stations in 1913, the published records of the work have been concerned until recently mainly with the morphological characters of the different kinds of stocks and the classification of the individual sorts into a series of groups differing primarily from each other in degree of vigour of growth. The general effect has been to focus attention on the importance of raising trees on stocks of known character and to stimulate propagators to provide supplies of trees true to name as regards stock as well as scion. The selection of the kinds of rootstock for such use from among the many forms available has necessarily been so far of a rather arbitrary nature and must continue so until the comparative trials, already in progress, have yielded more complete results. Choice has been made from the members of the respective groups, chiefly according to the degree of strength required, and for the purpose of the immediate work in hand it had to be tentatively assumed, pending direct proof or disproof, that the ultimate size of the tree produced would approximately correspond with the natural vigour of growth of the rootstock used.

Somewhat naturally, as a result of the emphasis placed on the advantages of using standardised stocks, there has been a tendency for some to regard the problem of stock influence as though the choice of particular types of stocks was the all-important matter. Those responsible for these investigations have, however, taken care to point out that stock selection only represents one phase of the question and constitutes a starting point for attacking the main problem of the nature of the inter-relation of rootstock and scion. The available results of the line of work to be considered in this paper indicate the justification of this attitude. It is not intended here to give more than a brief summary of the earlier stage of the work, since a more detailed account, incorporating the later results, will be published in due course.

In the particular problem under investigation in this case, *viz.*, the relation between stock and scion in respect of the growth and cropping capacity of the composite tree, one of the main questions

to be decided is that repeatedly propounded by pomologists. Does the stock dominate the scion in determining the size of tree, or is the scion the predominant partner? Some evidence bearing upon it has already been published, a general outline of which has been given by Gardner, Bradford and Hooker (¹), and special cases in a series of papers issued from the East Malling Station. It permits a partial answer, in that there is general agreement that certain of the reputed dwarfing stocks, *e.g.*, Jaune de Metz (Malling IX.), exercise beyond any doubt a dwarfing effect and produce a smaller tree than a more vigorous rootstock under the same conditions. On the other hand it is improbable that on evidence hitherto available there would be general acceptance of the proposition that the growth of the tree is in direct relation to the vigour of the stock, whether the latter's influence be either dwarfing or stimulating. Yet, as already seen above, in stock selection work, hitherto, even when this proposition has not been tacitly accepted, it has had to be taken provisionally as a working basis.

Before it can be decided if a particular stock is dwarfing or stimulating for a given scion variety, some standard to serve as a basis of comparison is required. The obvious standard is that of the scion variety growing on its own roots. Unfortunately in the case of varieties of apples grown for the sake of their fruit such a standard presents serious difficulty. Many either cannot be rooted by ordinary methods of vegetative propagation or fail to form a root system sufficiently well developed to be capable of yielding a normal and healthy tree. Others can be rooted more or less well, but both methods and results from the point of view of the problem to be investigated are open to considerable objection. The writer in conjunction with Mr. G. T. Spinks of this Station, has repeatedly tried the various methods which have been advocated from time to time and has tested in those ways an extensive range of varieties. In no case were the results considered to be sufficiently above criticism to serve to furnish the kind of standard required for an investigation of this nature. Several seasons having been lost after the investigation was originally planned in unproductive attempts along these lines, it was eventually decided to give up for the time being the attempt to use commercial varieties, and in their place to select sorts possessing the requisite free-rooting capacity without regard to the nature of their fruit. Such kinds, many in number, were already at hand in the shape of the various forms which had been previously examined and approved, as

¹) Gardner, Bradford and Hooker. *Fundamentals of Fruit Production*, 1922.

possible rootstock varieties in the earlier selection of the stock investigations devoted to stock selection. By using such material the difficulty of providing reliable trees on their own roots to serve as the standards for comparison in the trials was overcome.

The plan of experiment ultimately adopted was as follows. Three varieties were chosen as types representative of different degrees of vigour of growth, viz., (a) a "free" stock of very vigorous habit, discovered and propagated at Long Ashton many years ago and now known as Bristol V., (b) the Rivers' English Broadleaved Paradise (Malling I.), representative of an intermediate grade of strength and (c) the Jaune de Metz Paradise (Malling IX.), one of the most dwarfing forms in common use. Each of these was used in the tests both as scion and rootstock in all the possible combinations. These included unworked trees of each as well as others where the stock was worked with a scion of the same kind, so that the effect of the union between stock and scion, if any, on the growth of the tree could be ascertained. In all, to cover every case of combination possible, twelve sets of trees were required for the trials, these being as follows:—

- | | | |
|-----|------------------------------|---|
| (a) | Bristol V. | unworked
(<i>strong unworked</i>). |
| (b) | do. | on Bristol V.
(<i>strong on strong</i>). |
| (c) | do. | on English Broadleaved Paradise
(<i>strong on intermediate</i>). |
| (d) | do. | on Jaune de Metz
(<i>strong on weak</i>). |
| (e) | English Broadleaved Paradise | unworked
(<i>intermediate unworked</i>). |
| (f) | do. | on Bristol V.
(<i>intermediate on strong</i>). |
| (g) | do. | On English Broadleaved
(<i>intermediate on intermediate</i>). |
| (h) | do. | on Jaune de Metz
(<i>intermediate on weak</i>). |
| (i) | Jaune de Metz | unworked
(<i>weak unworked</i>). |
| (j) | do. | on Bristol V.
(<i>weak on strong</i>). |
| (k) | do. | on English Broadleaved
(<i>weak on intermediate</i>). |
| (l) | do. | on Jaune de Metz
(<i>weak on weak</i>). |

The name of the scion variety is given first in each case. All stocks were of the same age when the experiment was started, being one-year rooted plants, obtained from parent stocks by layering. Even-sized plants of each class were selected and the whole planted in a nursery row, and grafted according to plan *in situ* in March, 1923. They were left in the nursery quarters for two years after working, so that they might be ultimately planted out as two-year olds from the date of working. The unworked trees were the same as the worked in age of root system and were cut back to a corresponding degree when the others were headed back for grafting, so that no advantage should accrue on that account.

Results.

The results to be considered here are those obtained up to the time of removal of the trees from their nursery quarters in December, 1924. At that date the trees were planted up in their permanent positions.

The results since that time confirm generally those of the nursery period, but have been influenced by various disturbing factors, involved by transplantation and other causes. To avoid unnecessary complications of the issue in the present paper it is proposed to defer their consideration to a subsequent paper and confine attention to those of the nursery stage, which are definite enough to justify publication separately.

In this summarised account the records for individual trees will not be given in detail, the results being expressed as averages for the respective groups. A critical examination of the figures obtained by averaging may be necessary in the paper to follow, but the general conclusions which will be formulated in the present case are so well marked as to be undisturbed by the recognised weakness of the averaging method.

The appended table shows the average weight, height and 1924 shoot growth per tree for each class. The number of trees of each class raised in the nursery varied from 10 to 23 and is stated in each case later in the paper.

AVERAGE GROWTH MEASUREMENTS.

Class,	Height in cms.	1924 Shoot growth in cms.	Weight in grms.
(a) Bristol V. unworked	196.6	476.6	701
(b) Bristol V. on Bristol V.	179	442.5	637
(c) Bristol V. on English Broadleaved Paradise	162	253.6	390.2
(d) Bristol V. on Jaune de Metz	145	213	437
(e) English Broadleaved Paradise unworked	155	191.4	416.9
(f) English Broadleaved Paradise on Bristol V.	143	155.7	414
(g) English Broadleaved Paradise on English Broadleaved	139	143	325.2
(h) English Broadleaved Paradise on Jaune de Metz	117.5	67.6	219.4
(i) Jaune de Metz unworked	107	62.8	160
(j) Jaune de Metz on Bristol V.	114	65.7	182.8
(k) Jaune de Metz on English Broadleaved Paradise	79	49	120.9
(l) Jaune de Metz on Jaune de Metz ..	99	55.5	156.7

It is not intended to consider here these statistics in detail or the extent of variation of individual trees within each class. The salient conclusions on the main points at issue to be indicated are outstanding, in view of the relatively large differences shown by the average figures, which render detailed statistical analysis unnecessary.

They are as follows :—

(a) During the nursery period the unworked tree, on its own roots, is normally somewhat stronger than a tree produced by the grafting of a scion of the same variety upon a rootstock also of that kind. In other words, the presence of a graft union imposes some check to growth at this stage. The extent of the check was very variable in the series of trees under consideration here : in some instances it was so slight as to be almost negligible. Whether this effect is merely temporary and due to incomplete continuity of tissues of scion and stock for a time following the grafting operation, or is more permanent and brought about by a check to sap interchange between rootstock and scion at the graft union, is a point which can only be settled by the future behaviour of the trees.

(b) There is clear evidence that grafting a scion variety on a weaker-growing variety as rootstock results in the production of a smaller tree.

(c) The converse type of tree, *viz.*, one where the scion variety is weaker than the rootstock variety, is apparently sometimes slightly stimulated by the stronger rootstock, but the evidence is not conclusive and is open to criticism. Here again the future history of

the tree must be ascertained to show whether the stimulation, where it has apparently occurred, is temporary and caused by grafting on a strong root system already established, or is permanent and due to a regular forcing action of the stronger root variety.

(d) Where two varieties were interworked, *e.g.*, Bristol V. used as the scion variety on Malling I. as rootstock, and Malling I. used as the scion variety on rootstock Bristol V., there has been a big difference in the size of the trees produced, according to the way in which the combination was made. In all cases, except that of the combination Bristol V. on Malling I., which will be considered presently, much stronger trees have been produced where the stronger of the two varieties in the combination was used as the scion. If the action between scion and rootstock were evenly balanced, such combinations should at least have produced trees of the same average strength. Indeed, those with the stronger variety used as rootstock might have been expected to have been somewhat larger during the nursery history of the tree, on account of the more vigorous root system already established. The reverse in a very decided degree being the actual result, it must be concluded that the scion variety, whether strong or weak, exercises a much greater influence in determining the size of the tree than the rootstock variety.

The apparently exceptional case just referred to, *viz.*, that of the combination of Bristol V. on Malling I., is readily explainable. The group of trees with Bristol V. as the scion variety and Malling I. as the rootstock suffered severely from aphid attack in 1923, these with Malling IX. on Malling I. being the only trees in the whole series materially affected by the severe aphid epidemic of that year. As a result the leading shoots became badly twisted and distorted and subsequent growth heavily checked. Theoretically these trees should have been materially larger than those of Bristol V. on Malling IX., since Malling I. is a considerably stronger stock than Malling IX. Actually they were rather weaker. The difference in weight between them and the other set of the same combination, *viz.*, Malling I. as the scion on Bristol V. as the rootstock, is small and well within the limits of experimental error. Hence, had it not been for the aphid attack, it is legitimate to conclude that they would have been appreciably stronger and would have fallen into line with all the other cases.

(e) The relative dominance of the scion variety in determining the size of a tree is also clearly shown by comparing the various sets of figures obtained for either variety Bristol V., Malling I. and Malling IX., when used as scion and stock respectively.

For example, where Bristol V., the strongest grower, was used as the scion variety on Bristol V., Malling I. and Malling IX. as rootstocks, the average weights per tree ranged from 637 to 390, according to which rootstock variety was used. Where, on the other hand, it was used as the rootstock with the same three varieties as scion varieties, the average weights per tree ranged from 637 to 182 according to which scion variety was used. In other words, for the three varieties with which it has been tested, the variation in size of tree obtained is not one-half as great when Bristol V. is used as a scion as when used as a rootstock.

Similarly for the weakest variety, Malling IX., the corresponding figures were 182 and 120 when used as a scion and 437 and 156 when used as a rootstock.

(f) Some idea can be formed as to the probable range of variation in tree size, resulting solely from scion and stock interaction in the case of the apple.

Bristol V. is one of the "strongest" kinds so far isolated which root freely under the usual methods of stock propagation; Malling IX. is one of the "weakest." Hence the results for this pair in combination should furnish approximately the extreme proportions of stock and scion effect likely to occur in practice.

Bristol V. unworked and growing on its own roots gave a tree about $4\frac{1}{2}$ times as heavy as Malling IX. in corresponding condition. When Bristol V. was grafted on Malling IX., the weight of the scion Bristol V. tree was reduced from 700 to 437. When Malling IX. was grafted on Bristol V., the weight of the scion Malling IX. tree was increased from 160 to 182. (In neither case is the difference in original weight of the stock portion of the tree taken into account, although the extra weight of the Bristol V. rootstock is in itself sufficient to account for most, if not the whole, of the weight increment in the trees with Malling IX. as scion).

While, therefore, a very dwarfing stock may reduce the weight of a tree with an extremely vigorous scion variety by very nearly 50 per cent. as compared with the latter on its own roots, in the converse case of the very vigorous stock and very weak scion the increase in weight due to the stock is at the most in the region of 10 per cent. and, as already indicated, may be nil.

For practical purposes, therefore, so far as the tree of planting age is concerned, the rootstock used may result in a dwarfing effect, ranging from nothing to 50 per cent., but can give practically no increase in growth.

(g) A comparison of the heights of the individual trees in the various groups shows certain definite points :—

- Of the 10 trees in Class 1 (Bristol V. unworked) 100% have attained a height within 10% of the tallest.
- Of the 16 trees in Class 2 (Bristol V. on Bristol V.) 81% have attained a height within 15% of the tallest.
- Of the 17 trees in Class 3 (Bristol V. on Malling I.) 88% have attained a height within 15% of the tallest.
- Of the 23 trees in Class 4 (Bristol V. on Malling IX.) 91% have attained a height within 15% of the tallest.
- Of the 10 trees in Class 5 (Malling I. unworked) 90% have attained a height within 10% of the tallest.
- Of the 14 trees in Class 6 (Malling I. on Bristol V.) 93% have attained a height within 15% of the tallest.
- Of the 13 trees in Class 7 (Malling I. on Malling I.) 85% have attained a height within 16% of the tallest.
- Of the 21 trees in Class 8 (Malling I. on Malling IX.) 76% have attained a height within 15% of the tallest.
- Of the 17 trees in Class 9 (Malling IX. unworked) 65% have attained a height within 29% of the tallest.
- Of the 9 trees in Class 10 (Malling IX. on Bristol V.) 74% have attained a height within 22% of the tallest.
- Of the 15 trees in Class 11 (Malling IX. on Malling I.) 53% have attained a height within 23% of the tallest.
- Of the 15 trees in Class 12 (Malling IX. on Malling IX.) 33% have attained a height within 25% of the tallest.

There was thus in Classes 1-7, a well-marked degree of uniformity in height of the individual trees within any one class, with Class 8 very little less regular. Classes 9-12 were much less uniform, Class 10 being, however, appreciably better than the other three. For uniformity in height, therefore, the scion variety clearly dominates the stock and, so long as the former is at least moderately strong, a level set of trees, as regards height, may be raised on any stock, even the weakest. If, however, the scion variety is a weak grower, trees very irregular in height will follow, even when the strongest type of stock is used, although the latter will give the most level results obtainable with a weak scion variety.

(h) Comparison of height and weight figures for individual trees of the same set shows remarkable divergency in results. Trees within 10 per cent. of each other in respect of height frequently give differences of 200 per cent. and sometimes over 300 per cent. in weight.

It is thus extremely misleading to estimate the growth performance of trees by height measurements only, for what may appear as viewed in nursery rows, a remarkably level lot of trees, may be as diverse in weight as another set of trees obviously irregular in height.

(i) A point of both scientific and practical significance was brought into prominence by the behaviour of the trees of Group 4. (Bristol V. as scion on Malling IX. as rootstock). In this group 13 of the 23 trees bore a crop of fruit in 1924, grafting having been done in the spring of 1923. The number of fruits varied from 4 to 26 per tree. No other trees in any series produced any fruit.

This result should be considered in conjunction with that obtained by Hatton (¹), who reported a similar experience when Bramley's Seedling was grafted on Malling IX. It is well known that the latter as a dwarfing rootstock quickly brings varieties worked upon it into bearing.

It is significant that in these cases it is the ultra-vigorous variety brought into fruit in the second year, whereas the weaker forms as scions remained barren. Normally the strongest growers are regarded as difficult to bring into fruit until the trees are of some age.

If this result is accepted as indicative of the necessity of a very large difference in vigour between scion and stock—the former being the stronger—to produce precocious cropping through stock influence, it may be taken as suggestive of internal causes in the tree required to initiate flower bud formation. Kraus and Kraybill (²) have produced evidence showing a relation between the carbohydrate-nitrogen ratio in the tissues, and the behaviour of the plant in respect of flower production, the latter tending to be more profuse when the carbohydrate content is relatively high. The trend of all the work at Long Ashton on the factors governing fruit bud formation is in the direction of the water content of the tree being also closely concerned, conditions favouring a relatively high water content resulting in comparatively strong vegetative growth and those associated with a low water content being followed by restriction of vegetative growth and an increase in blossom production. In the case here under consideration vegetative growth of the scion has been markedly restricted, especially as regards lateral shoots. The result has been the production of a series of short lateral spurs with a relatively large leaf area in the immediate neighbourhood of the terminal bud in each case, owing to the failure

(¹) R. G. Hatton. Suggestions as to the Right Selection of Apple Stocks. R.H.S. Journal, July, 1920.

(²) Kraus and Kraybill. Vegetation and Reproduction with Special Reference to the Tomato. Oregon Agr. Exp. Sta. Bull., 149, 1918.

of the axis to elongate and separate the individual leaves by internodes of material length.

The precocious flowering can thus be accounted for by, firstly, the dwarfing of the tree under the low water-content conditions resulting from the weak rootstock and, consequently, the conversion of the terminal buds of the lateral shoots into flower buds coincident with the relatively high local carbohydrate accumulation resulting from the large leaf area directly serving those buds.

If this explanation holds good, it follows that the failure to form blossom in the other cases is attributable to the existence of a different relation between water content and leaf efficiency.

Conclusions.

It is evident from the individual results just recorded that tree size in the case of worked trees bears a direct relation to the degrees of natural "strength" or vigour of growth of the two varieties used as scion and rootstock respectively, the weaker of the two functioning as a limiting factor. The actual size of the tree produced is not, as already shown, uniform for a given pair of varieties, irrespective of which is used for scion and which for rootstock: it varies according to whether the stronger or the weaker variety serves as the scion, a bigger tree resulting in the former case.

To take a concrete example, assuming that it was possible to root by layering a "strong" variety like Bramley's Seedling and a weak variety such as D'Arcy Spice as freely as one of the usual rootstock varieties, and that a series of trees of both those kinds was raised by grafting scions of each on rootstocks of each, the results would be of the following order. The Bramleys worked on the D'Arcy Spice rootstock would be much smaller than Bramley on Bramley, but definitely larger than D'Arcy Spice on Bramley. The latter would be very little different from D'Arcy Spice on D'Arcy Spice.

That is to say, the size of a worked tree is approximately similar to that of a tree of the scion variety grown on its own roots, if the rootstock used is of a variety of equal or greater vigour: when the rootstock variety is less vigorous than the scion variety, the size of the tree falls short of that standard in proportion to the relative "weakness" of the rootstock variety. Expressed in another form, appropriately chosen rootstocks exercise a dwarfing influence on tree size, but even the strongest produce little or no real increase in the growth vigour of any scion.

Since the extent of "dwarfing" depends upon the degree of "weakness" of the rootstock variety in relation to the scion variety, precocity in fruiting is most quickly secured when the scion variety is the "stronger" and the gap in growth vigour between the two as wide as possible.

**SOME PRELIMINARY OBSERVATIONS UPON THE INFLUENCE
OF SCION VARIETY UPON THE ROOT GROWTH OF YOUNG
APPLE TREES.***

By Thomas Swarbrick.

Recent research into the relation of vegetative rootstocks to the growth and fruiting of scion varieties has served to somewhat concentrate our attention upon one particular phase of this inter-relationship. As compared with observations upon the parts of the tree above ground level, observations upon root-growth and root character are extremely difficult to make. Leaves being the centres of photosynthetic activity in the plant, leaf products must serve as the initial source of food supply for the rest of the plant body. Because of differences in leaf area and distribution between varieties, one might expect that different varieties would have somewhat different root habits. It is also well known that certain varieties shed their leaves early in the autumn whereas others retain them much longer. The recent work by Knight (3), and Swarbrick (6), has emphasised the importance of the position of leaves and developing leaf buds. These are found to be associated with diameter growth in a way that was not previously recognised. These influences are shown upon the tree in a basipetal direction. That is, the effect upon radial growth is shown from above downwards. The beginning of the growth activity in spring and its cessation in autumn, food usage and its subsequent re-storage, all proceed from the apex of a stem downwards. It has been shown (6) that there is a distinct wave of food storage down the stem in autumn. This is clearly related to the presence and distribution of leaves. Root elongation growth also appears to be definitely related to this autumnal accumulation of food substances in the stem tissues. In view of the fact that there are these downward tendencies in woody stems, one might conceivably expect differences due to variety in a scion to be gradually impressed upon the root, seeing that the root is so dependent upon the stem portion for its nutrition.

Mention was made earlier of the difficulties of observing root-growth and root character. What little work has been done upon the effect of scion upon root character is inconclusive and conflicting. Pickering (5) noted such an effect of scion upon root growth and recorded it as follows: "The nature of the scion, in the same way, appears to be generally without influence upon the development of the stock though there are some instances in which it affects this

stock in much the same way as the stock affects the scion : one or two varieties of apples, *e.g.*, Tylers Kernel, when grown upon Paradise stocks, alter the habits of the roots to such an extent that they assume the deep rooting straggling characteristics of the crab stock." Hatton (2), however, from his own experimental work does not regard the available evidence as in any way decisive. Hatton's data, however, strongly suggest such influences associated with certain varieties. This suggestion is considerably strengthened by the assertion of some nurserymen that certain varieties are coarse rooters as against others that are relatively fine rooters. A definite influence of variety upon root character can be inferred from Hatton's work upon vegetative rootstocks. He states in the above paper that he specially selected for a particular purpose Malling Type I. because unworked it presented a well mixed balance of coarse root and fibre ; Type II. because fibre is always notably scanty ; and Type IV. because of its marked horizontal rootedness. These differences in root character between the Malling Types I., II. and IV. are varietal differences due entirely to the varietal nature of the scions, which in this case were the unworked Malling Types. Except by working on a fairly large scale conclusive evidence of the effect of scion upon rootstock is difficult to establish. The problem is further complicated in that except under rare circumstances one does not see any quantity of trees of several varieties out of the ground at the same time.

During the winter and spring of 1926-27, the writer had the opportunity to examine this particular relationship under very favourable conditions, namely in some of the larger nurseries in the Middle West of the United States of America. Conditions and practice are radically different in this part of America from conditions and practice in England. In the first place the situation in the majority of the American nurseries is not complicated by the use of both vegetative and seedling rootstocks, for they use the latter entirely. The writer was in two nurseries which each made over five million apple grafts a year, and was in touch with a third one which made ten million each year. In none of these nurseries were any trees worked upon vegetative propagated rootstocks. The practice in these nurseries is to bench-graft. That is, one year old seedlings grown in the fertile valleys of Kansas and Missouri are dug in autumn and sent in bundles to the various nurseries throughout the States. In the particular nurseries under notice, these seedling roots are then passed through the hands of a gang of boys who with sharp knives remove any lateral roots, leaving the long

tap root looking like a long narrow carrot. It is the aim of the growers of these seedlings, and the desire of the nurserymen to obtain seedlings with long large unbranched tap roots. A selection of such roots is shown in Figure I. These trimmed roots are then severed from the tops well below the crown region and cut up into 5-6 inch pieces. A 5-8 inch scion piece is then grafted by means of a whip and tongue graft on to the root piece. The grafts are then tied and waxed and put away at a suitable temperature in order to callus. After callusing they are planted out in the nursery rows when conditions become favourable in spring.

Climatic conditions in the Middle West make it impossible either to lift or plant fruit trees between the middle of December and the middle of February. As a consequence, trees intended for planting in the spring are lifted in autumn and stored throughout winter in specially constructed storehouses. After lifting the trees are graded and tied up into bundles. The bundles are then stacked in the storehouses with their roots outwards. These stacks may be as much as 15 feet high. The roots are loosely covered with wood shavings previously soaked in water. The atmosphere of the storehouse is kept humid and the roots are watered occasionally to prevent them drying out. In such storehouses it is possible to examine thousands of trees of all the recognised commercial varieties. The age of these trees is usually two or three years from grafting.

With such standardised methods of production on so large a scale and with the handling and storage of these trees during winter it is perhaps not surprising that the nurserymen are fully aware of certain differences in root character between varieties. In fact some go so far as to demonstrate their ability to identify certain varieties by their root as well as their stem characters. Nor is this opinion confined to the nurserymen themselves. Their employees all know which are the varieties that are difficult to dig on account of their great coarse roots, and those that are easy to dig because they are sparse rooters. This in itself is evidence of marked differences in root character due to the scion they are worked to.

Upon examination and comparison of a very large number of trees made as outlined above and grown for two years in the nursery it was found that the variety of the scion had a marked influence upon the root character of the resulting two year old tree. In fact root character appeared to be determined largely by varietal influence. This influence was shown in the proportion of coarse to fibrous roots ; the general direction (horizontal or downward) of root growth ;

the origin of the main lateral roots on the original root piece ; in anatomy and in the total amount of root produced. The wide differences in root character associated with such varieties as Tetofsky and Winesap (see Figure II.) were found to persist throughout all observed conditions of age, soil and climate. This effect of scion upon root character is not directly correlated with the total amount of shoot growth made by the scion variety. The variety Bechtel Crab makes but a small amount of top growth as compared with most varieties, yet it invariably develops coarse fangy roots (see Figure III.). Bechtel is reputed by the nurserymen to be the coarsest rooted apple tree for its age that they grow. Winesap, on the other hand, had invariably a sparse amount of root, somewhat fine in character and without any big coarse roots such as those of Tetofsky (see Figure II.). There are, of course, a number of varieties the roots of which do not appear to differ much from each other. In this preliminary survey, however, we are not much concerned about these intermediate forms. It appears to be significant enough, that starting with a miscellaneous collection of one year old seedling root pieces we should end up after two years growth with root systems that are so uniform within a variety, but which differ so markedly between varieties. In view of the miscellaneous seedlings used, the degree of uniformity in root character within a variety and the differences between varieties are most noticeable. The examination leaves no room for doubt. Under the observed conditions there is a marked influence of scion variety upon the root character of the tree when it is one, two or three years old from grafting.

The influence is more clearly appreciated by a comparison of the roots shown in Figures II. and III. with those shown in Figure IV. This latter Figure shows a number of seedlings pulled up out of the nursery row. They are the root pieces upon which the grafts failed to grow. These root pieces have developed shoots and grown into small trees. The miscellaneous character of the seedlings used and the resulting miscellaneous root character of the unworked seedlings is readily observed. This miscellaneous root character among the *seedlings* is in marked contrast with the roots illustrated in Figures II. and III. where it is shown that the two year old trees of commercial *varieties* have a type root character. It must be admitted therefore that the scion influence is of no mean order when it can so mould root growth. It is admitted that there is a small range of variation in the root character of trees within a variety. This range, however, is comparatively small. If the

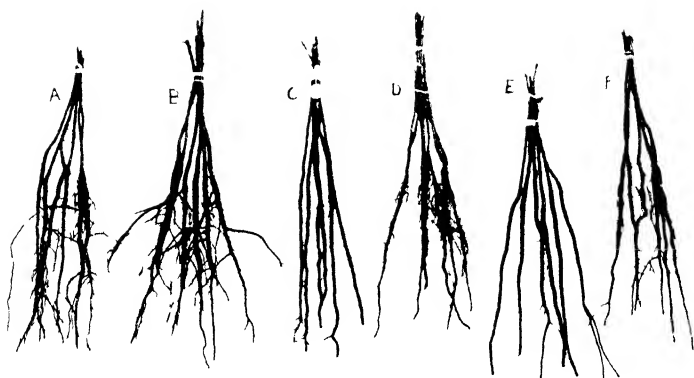


FIG. I

A section of One Year Old Seedlings used for Bench grafting in U.S.A. A - A grown from imported French crab apple seeds. B - coarse rooted seedlings selected from A. C - unbranched seedlings selected from A. D - grown from Vermont crab apple seeds. E - seedlings of a Tennessee species crab apple. F - seedlings grown in Washington State.



FIG. II

One Year Old Grafts of Bench grafted Seedlings

A - Whitney Crab C - Winesap
B - Grimes Golden D - Tetofsky

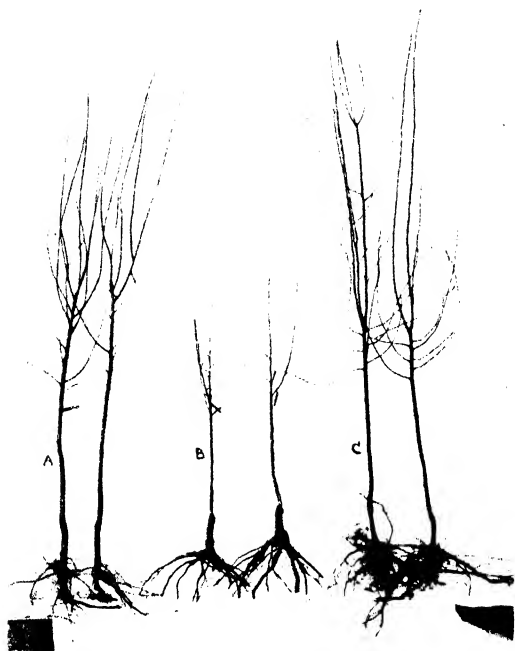


FIG. III.
Two Year Old Trees of A. Rambo. B. Bechtel. C. Jonathan. Bench grafted upon
Seedling Roots. Note that the amounts of top growth and root growth are not
necessarily directly proportional.



FIG. IV.
A Group of Unworked Seedlings. These were the root pieces upon which the grafts
failed to grow. Such seedlings show a wide range of root character. This is in marked
contrast to the uniformity of root character in those cases where the grafts grew.



range in root character in the ungrafted seedlings be taken as the standard for comparison then that in the root character of trees within a variety is negligible.

It is usual to regard the variable tree size in the nursery row as the result of a direct influence of the seedling root. It was found, however, that the small trees of a variety had root systems not different in character from those of the larger trees of the same variety. It does not necessarily follow, of course, that such root systems will have entirely lost their individuality because they are moulded into a variety type by scion influence. The fact that they are so moulded, however, calls for a much more searching enquiry into the nature of rootstock and scion influences and into the causes of the somewhat variable growth that is usually considered to be associated with the use of seedling rootstocks in England. In view of our lack of knowledge of the factors that cause the variations in the size of trees in the nursery row it is impossible to discuss this particular phase of the question further. It is pointed out, however, that the variations may be due to a number of factors some of which are environmental and physiological and are apart from the genetic constitution of the seedling roots. It is obvious that this whole problem must be dealt with before the usefulness of vegetative and seedling rootstocks can be truly evaluated.

The question naturally arises—"Why, under conditions so far investigated, are vegetatively propagated rootstocks apparently so little affected in morphological root character by scion variety whereas root grafted seedlings are so much dominated?"† It is thought that an answer has been found in the behaviour of two different groups of trees; namely, in the root character of high budded trees, and in that of double worked trees. Trees of a variety which were budded very low on to the crown of the root were found to have a root character approaching that of the root grafted trees. On the other hand trees that were budded very high on to the seedling stem piece had a very variable root character. These points are shown in Figure V. It appears that if the root proper and the scion variety are separated by a piece of stem other than that of the scion, then the root character may be but little influenced by the top scion variety. In fact this interpolated stem piece appears in many cases not only to materially reduce any influence of scion variety upon root character, but to markedly influence root character itself. Where trees were double worked with certain known varieties the roots of these trees were character-

istically that of the intermediate stem piece. This was observed on trees up to two years old from double working. It was also observed that varieties differed in the degree in which a piece of stem, when used as an intermediate piece, was able to influence the root character.

It is suggested that these observations explain in a large measure the results secured by using vegetative rootstocks. Such stocks are stem pieces from which roots have arisen. Thus the scion when worked upon such paradise rootstocks is always separated from its real root system by a stem piece of varying length. The relative uniformity of top growth secured by the use of such rootstocks may be largely explained by the use of a uniform variety intermediate stem piece. The trees are in fact double worked with a uniform intermediate stem piece. Knight (4) and Grubb (1) working independently of each other, and of the present writer, have shown that a piece of stem six inches long inserted between the scion and the rootstock has a marked influence upon the growth and the behaviour of the scion variety.‡ In view of the evidence set out in the work of Knight and of Grubb, and the observations outlined in this present paper, it is legitimate to argue that a large proportion of the variation that supposedly arises from the use of seedling rootstocks is a direct result of the English custom of working some 6-8 inches high upon the seedling stem. This leaves some 8-10 inches of seedling stem between the scion and the root. The trees therefore, have present between the scion and the root system a piece of the stem of the original seedling. Because of the variable nature of miscellaneous seedlings these stem pieces are very different. The trees, because of this interposed stem piece, have the same make up as double worked trees. Trees worked upon vegetatively propagated rootstocks also have a stem piece of varying length between the scion and the root system, the stem of the stock. In the case of trees worked upon the stems of seedlings, the interpolated stem piece varies in character from tree to tree, but with trees upon uniform vegetative stocks this interpolated stem piece is of a uniform character. Emphasis is laid upon this fundamental difference between the two sets of trees. A discussion of this emphasis, involving as it does the very nature of rootstock influence must be left to a future occasion. If,—as has been shown by the work of Knight (4) and of Grubb(1) and which is indicated in the observations upon high budded trees recorded in this paper,—the intermediate or interpolated stem piece can exert such a marked influence upon the growth of the scion variety, particularly during the early

life of the tree, then it is but reasonable to suppose that it may also have a modifying influence upon root growth. The length of time over which such influences may be observed is still a matter which cannot be decided. At the present time it is premature to attempt an extended discussion of these interesting points or make any further reference to them except to point out that a greater degree of uniformity in trees is secured during early years by using seedlings of certain species of crab apples than by using the so called free stocks. The uniformity of type and character in the former is in marked contrast to the lack of it in the latter stocks.

While recent investigations have focussed attention upon the differences in behaviour between trees upon seedling and upon some vegetatively propagated rootstocks, the question of the relative economic importance and value of seedling as against vegetative stocks still remains to be settled. The problems of the relation of seedling rootstocks to the growth of scion have scarcely been touched upon as yet in an experimental fashion. It is at least suggestive that vegetative rootstocks are so little used on the American continent which is the largest apple producing section in the world. It was found in the larger commercial orchards in the Middle West, particularly the younger ones, that there was a remarkable degree of uniformity of tree size and vigour. The older orchards it is true presented a rather patchy appearance, particularly in the parts where the winters are very severe. In the more amenable climates the varieties are remarkably uniform. The differences between varieties, however, were most marked. The writer saw orchards of varying ages under various conditions. While variation was present, yet when due allowance was made for the extreme severity of the climate, soil and culture, the amount of variation was remarkably small. In fact under reasonable conditions of soil and culture the uniformity of tree size within a variety was more pronounced than was the lack of it. A case in point was a six year old orchard where over 900 out of 1,000 Wealthy trees came into bearing in the fifth year from planting, and with a remarkably uniform crop from tree to tree. The remainder were promising very well for a good show of blossom buds the following spring. In any case, the aim of the orchard cultivator is to obtain the best possible crop of fruit as regularly as possible. It is possible that this may be achieved by the use of vegetatively propagated rootstocks. It is clear, however, that the range and usefulness of seedling rootstocks has not yet been fully investigated, and the

time has not yet arrived for deciding in favour of either class of stock. It is probable that there are certain conditions which render either one preferable to the other.

* The data given in this paper are taken from a paper entitled, "The Relation of Scion Variety to the Character of Root Growth in Apple Trees," by R. H. Roberts and the present writer. The work there recorded was carried out conjointly by the authors in the Department of Horticulture, Agricultural Experiment Station, Madison, Wisconsin, U.S.A., and was first published in Research Bulletin 78 of that Station. In the present paper the data are used to discuss certain aspects of the rootstock and scion relationship with reference to the position in England. The plates are reproduced with the kind permission of the Director of the Agricultural Experiment Station, Wisconsin. My best thanks are accorded to Professor Roberts for assistance and generous help in many ways. Acknowledgment is also made of the receipt of a Ministry of Agriculture Research Scholarship while carrying out this work.

† Experiments in progress at Long Ashton, under the direction of Professor Barker, show clearly that the scion variety has a pronounced influence upon the amount of root produced by trees worked upon some of the vegetatively propagated rootstocks. For example, where Bristol Type V. and Mallington Type IX. are used as scions and worked upon Bristol Type V. and Mallington Type I. rootstocks, the amount of root formed in the two cases is very different. That formed under the trees worked to Bristol Type V. is much greater in amount than that formed under the trees worked to Mallington Type IX. There is, however, no observable change in morphological root character. The roots have retained their morphological character, although the amount of root produced has been profoundly modified. Mallington Type IX. rootstock on the other hand, does not appear to be so easily influenced by the scion variety. The amount of root as compared with trees on their own root is not very materially increased by the use of a very vigorous scion such as Bristol Type V. There is, however, the interesting suggestion that where the vigorous scions worked upon Mallington Type IX. have produced scion roots, then the root system of the original stock is strengthened. The strengthening appears largely in the nature of increased diameter of the roots already formed rather than the production of more roots. Thus, it appears that over the period of this experiment, and under its conditions, the vegetatively propagated rootstocks, Mallington Types I. and IX., and Bristol Type V., retain their morphological root character but that the amount of root is determined by the scion. Mallington Type IX. as a scion has an adverse effect upon root development. On the other hand the vigorous scion Bristol Type V. when used as a scion upon Mallington IX. rootstock is not able to materially increase the amount of root produced over that of unworked trees of the same age.

‡ It should be pointed out that such variable growth and performance as is recorded for trees upon seedling stocks is most in evidence during the very early life of the tree. In more mature orchards, that are free from rogue varieties, the uniformity of tree size and performance is particularly in evidence. In other words trees upon seedling stocks approach uniformity more and more as they reach maturity. This uniformity of mature trees of a variety upon a given soil was clearly brought out by the recent fruit soil survey, carried out by Messrs. Wallace, Spinks and Ball of the Research Station, Long Ashton, Bristol. The importance of this ultimate tree size and uniformity as against a supposed lack of it in the early years of the tree's life must be considered in any discussion of the relative merits of seedling and vegetatively propagated rootstocks.

LITERATURE CITED.

- (1) GRUBB, N. H. Experiments with Double Worked Pears on Quince Stocks. *Ann. Rept. (Supplement) East Malling Research Station*, 1925, p. 11-15 (1927).
- (2) HATTON, R. G., GRUBB, N. H. and AMOS, J. Some Factors Influencing Root Development. *Ann. Rept. East Malling Research Station*, 1923, p. 110-119.
- (3) KNIGHT, R. C. The Relation in the Apple Between the Development of Young Shoots and the Thickening of Older Stems. *Ann. Rept. (Supplement) East Malling Research Station*, 1925, p. 54-69 (1927).
- (4) DO. Preliminary Observations on the Causes of Stock Influence in Apples. *Ann. Rept. (Supplement) East Malling Research Station*, 1925, p. 51-63 (1927).
- (5) PICKERING, S. U. "Science and Fruit Growing" (London).
- (6) SWARBRICK, THOMAS. Studies in the Physiology of Fruit Trees I. The Seasonal Starch Content and Cambial Activity of one to five year old Apple Branches. *Journal of Pomology*, VI. p. 137-156, 1927.

XVII.—ANNUAL REPORT OF THE CONSULTING CHEMIST FOR 1927.

(Dr. J. A. Voelcker, M.A., F.I.C.).

The samples sent by members during 1927 numbered 23, as against 33 in 1926. There were also 58 samples of Cider analysed in connection with the Show at Bath, as compared with 25 the year before.

As previously, the majority of the samples came from one estate. The list is as follows :—

FEEDING STUFFS.

Linseed Cake	6
Cotton Cake	3
Decorticated Cotton Cake	1
Paln Kernel Cake	1
Dairy Nuts	1
Fish Meal	1

FERTILISERS.

Superphosphate	1
Basic Slag	1
Sulphate of Ammonia	1
Kainit	2

Milk	1
Water	4

23

In no case did the analyses, either of feeding stuffs or of fertilisers, bring out any instance of manifest adulteration or misrepresentation, though, in several, the wisdom of having deliveries checked by chemical examination was shown.

A. FEEDING STUFFS.

1. LINSEED CAKE.

The six samples sent analysed as follows, the prices (carriage paid) being given to each :—

	1.			2.			3.			4.			5.			6.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Price per ton	13	15	0	13	15	0	12	10	0	12	12	6	12	15	0	12	15	0
Moisture	12.88			13.25			11.14			11.56			11.72			12.35		
Oil	12.77			12.52			9.51			14.97			9.25			7.95		
*Albuminoids	28.56			28.62			31.31			28.75			30.50			31.75		
Carbohydrates	33.68			33.37			35.07			33.26			35.39			35.57		
Woody Fibre	6.75			6.92			7.45			6.88			7.32			7.00		
**Mineral Matter	5.39			5.32			5.52			4.58			5.82			5.38		
	100.00			100.00			100.00			100.00			100.00			100.00		
*Containing Nitrogen	4.57			4.58			5.01			4.60			4.88			5.08		
**Including Sand .. ..	.09			.13			.19			.26			.03			.09		

It will be seen from this table that there was little correspondence between price and oil contents—the richest cake of all being No. 4, and that, the cheapest but one. The higher price of Nos. 1 and 2 was justified, but Nos. 3, 5 and 6 were comparatively dear, the last named especially so. Nos. 1 and 2 were quite pure, but all the others left something to be desired in the matter of freedom from weed seeds.

2. COTTON CAKE.

These were all pure and, as a class, of more than usual richness in oil. Analyses and prices (delivered) were :—

	1.			2.			3.		
	£	s.	d.	£	s.	d.	£	s.	d.
Price per ton	7	17	6	7	12	6	8	8	9
Moisture	10.67			12.90			11.80		
Oil	5.60			7.58			5.52		
*Albuminoids	25.56			21.25			22.44		
Carbohydrates	31.48			32.64			34.33		
Woody Fibre	22.02			20.61			20.93		
**Mineral Matter	4.67			5.02			4.98		
	100.00			100.00			100.00		
*Containing Nitrogen	4.09			3.40			3.59		
**Including Sand .. ..	.25			.33			.20		

3. DECORTICATED COTTON CAKE.

The one sample sent was good, and more than usually rich—containing, as it did, 15.71 per cent. of oil. Seeing, however, that Decorticated Cotton Cake was then selling at £9 7s. per ton, f.o.r., the price charged—£11 5s. (delivered)—must be considered as on the high side.

4. PALM KERNEL CAKE.

The sample analysed was good and pure, the price (£9 10s. per ton, delivered) being fair.

5. DAIRY CUBES.

Cotton seed, Wheat, Barley and Oats were the main constituents of this food—sold at £10 5s. per ton. on rail.

6. FISH MEAL.

This was satisfactory, containing neither oil nor salt in excess.

B. FERTILISERS.

1. SUPERPHOSPHATE.

Guaranteed to contain 30 per cent. of “soluble phosphate,” the sample sent showed 1 per cent. deficiency, this being, however, within the limits generally allowed.

2. BASIC SLAG.

Sold at 72s. 6d. per ton and guaranteed 40 per cent. phosphates, the sample sent was well ground (82.5 per cent. fineness) and had 39.72 per cent phosphates.

3. SULPHATE OF AMMONIA.

The price of this salt has gone down very markedly. The sample sent had 25.60 per cent. ammonia, and cost £10 12s. 6d. per ton, delivered.

4. KAINIT.

The price of potash salts has undergone little alteration. The two samples sent contained respectively 13.4 and 17.1 per cent. of potash; the latter at 66s. per ton, delivered, was decidedly cheap.

C. MILK.

A sample of Milk was sent under the belief that it was abnormal. This proved, however, not to be the case, the analysis being :—

Water	..	..	..	..	86.20
Fat	..	..	..	..	4.35
Solids—not fat	..	..	..	..	9.45
					<hr/>
					100.00
					<hr/>

The milk was from a Jersey cow.

D. WATERS.

Four samples of water were sent for report. One of these (from Wiltshire) was turbid and coloured. It contained dissolved organic matter in considerable amount, and showed signs generally of having been contaminated. The other three, while being all more or less hard for general domestic uses, were quite fit ones as drinking supplies.

The operation of the Fertilisers and Feeding Stuffs Act, 1926, though it has passed both Houses of Parliament, has been “held up” for the preparation of the necessary Regulations, Methods of sampling, analysis, etc. This has formed the work of a special Committee of the Ministry of Agriculture, of which I was a member. The work has now been completed, and the Regulations etc., will shortly be laid before Parliament, and the Act, it may be assumed, will come into force as from July 1, 1928.

In this connection I might draw attention to my article in the last number of the Society’s Journal (1926-27, pp. 22-37) in which are set out the principal changes to be introduced by the new Act. I shall be happy to send a reprint of this article to any member asking for it.

Bath and West and Southern Counties Society.

BATH MEETING, 1927.

JUDGES.

HORSES.

Shire.—F. W. GRIFFIN, Boro Fen, Peterborough.

Suffolk.—Sir MERRIK R. BURRELL, Bart, Knepp Castle, Horsham.

Hunters.—Hon. ALEXANDER PARKER, Norton Curlien, Warwick.

Arabs and Driving Classes.—F. VIVIAN GOOCH, Homeleigh, Park Road, Leighton Buzzard.

Polo and Riding Ponies.—Lt.-Col. H. G. M. PLEYDELL-RAILSTON, Longthorns, Blandford, Dorset.

Shetland Ponies.—W. BROWN MOIR, Dunbae House, Stranraer, Wigtownshire.

Dartmoor Ponies.—E. P. NORTHEY, Higher Bowden, Okehampton.

Exmoor Ponies.—F. G. HEAL, Ley, Exford, Taunton.

Welsh Mountain Ponies.—T. B. LEWIS, Bronallt, Llanwrtyd Wells.

Hack and Riding Ponies.—Mrs. HESELTINE, Gunville House, Sedghill, Shaftesbury, Dorset.

Jumping.—Sir H. H. A. HOARE, Bart., Stourhead, Zeals, S.O., Wilts.

CATTLE.

Devon.—R. COOK, Whitnage, Upplowman, Tiverton, Devon.

South Devon.—G. WILLS, Rydon, Ogwell, Newton Abbot.

Shorthorn.—J. PETER, Ham Villa, Berkeley, Glos.

Dairy Shorthorn and Milk Recorded.—G. BICKFORD, Somerford, Brewood, Staffs.

Hereford.—C. H. TINSLEY, Twyford, Pembridge.

Sussex.—J. R. BETTS, Greenhill Farm, Otham, Maidstone.

British Friesian.—A. WEIGHTMAN, Middle Herrington Dairy Farm, near Sunderland.

Aberdeen Angus.—A. P. McLAREN, The Warren, Croughton, Brackley.

Red Poll.—R. B. ASTLEY, The Weir House, Alresford, Hants.

- Welsh Black.**—D. W. MORRIS, Penywern, Talybont, Cards.
Ayrshire.—A. STEELE, 162, Victoria Avenue, Southend-on-Sea.
Blue Albion.—A. T. GREENSLADE, Little Walden Park, Saffron Walden.
Jersey Cows and Heifers.—J. A. PERREE, Oaklands, St. Saviours, Jersey.
Jersey Bulls.—W. E. BUDGETT, Henbury, Bristol.
Guernsey.—O. J. LE PAGE, Le Briquet, St. Saviours, Guernsey.
Kerry.—H. D. BETTERIDGE, "Melton," 14, Terminus Avenue, Bexhill-on-Sea.
Dexter.—E. P. PEYTON, Cattlespoole, near Bromsgrove.
Milk and Butter Test.—A. F. SOMERVILLE, Dinder House, Wells, Somerset.

SHEEP.

- Devon Longwoolled.**—W. G. BRENT, Warrens Park, Coads Green, Launceston.
Kent or Romney Marsh.—H. RIGDEN, Etchinghill, Shorncliffe, Kent.
Southdown.—A. C. HARRIS, The Warren, Summersdale, Chichester.
Hampshire Down.—B. J. WATERS, Bishopstone, Salisbury.
Oxford Down.—R. G. ADAMS, Fernham Manor, Faringdon.
Dorset Horn.—W. J. CHICK, Stratton, Dorchester.
Dorset Down.—H. R. WATSON, Milborne Wick, Sherborne.
Exmoor Horn.—T. PRING, Champson, Molland, Barnstaple.
Suffolk.—S. R. SHERWOOD, Playford, Ipswich.
Ryeland.—R. R. GRIBBLE, Gabriels Manor, Edenbridge, Kent.
Kerry Hill.—J. W. OWENS, Woodhouse, Shobdon, Herefordshire.

GOATS.

- H. S. HOLMES-PEGLER, Coombe Bury, Claygate, Esher, Surrey.

PIGS.

- Berkshire.**—R. W. CARSON, Lea Hall, Hatfield Heath, Harlow, Essex.
Large Black.—J. WARNE, Tregonhayne, Tregonning, Grampound Road.
Large White.—D. W. GUNN, Risethorpe, Compton Road, Sherwood, Notts.
Middle White.—L. C. PAGET, Middlethorpe Hall, York.
Tamworth.—F. WEBB, Billington Estate Office, Leighton Buzzard.
Gloucester Old Spots.—G. CROCKER, Eastacott Farm, Umberleigh, N. Devon.
Wessex Saddleback.—E. E. RALLS, Wade Park Farm, Totton, Hants.
National Long White Lop-Eared.—W. H. NEAL, Yealmpston, Plympton, Devon.
Bacon Pigs.—J. M. HARRIS, Chilvester Hall, Calne, Wilts.

PRODUCE.

Cider.—E. P. WEST, University Research Station, Long Ashton.

Cheese. (Other than Caerphilly).—A. TODD, British Dairy Institute, Reading.

Caerphilly Cheese.—J. PARFITT, Cambrian Road, Newport, Mon.

Cream Cheese, Butter and Cream.—MRS. LUKE, 9, St. James' Place, The Hoe, Plymouth.

COMPETITIONS.

Butter Making.—MRS. STEVENS, Grove Farm, Emmer Green, Reading.

Ditto (Championship Class) A. TODD, British Dairy Institute, Reading.

Milking.—MISS M. C. TAYLOR, Somerset Farm Institute, Cannington, Bridgwater.

Shoeing.—W. HILL, F.W.C.F., 20, Polsloe Road, Exeter.

POULTRY.

G. DOBLE, Royal Ashton Hotel, Taunton (Classes 1 to 25, 46 to 53 and 56 to 59).

C. WATSON, Oxhey, Watford (Classes 1, 26 to 45, 54 to 55 and 60 to 73).

PIGEONS.

P. R. HARROWER, 21, Orcheston Road, Bournemouth.

RABBITS.

G. GARDNER, 11, Haverstock Road, London, N.W.5.

FORESTRY.

J. C. BROWNING, Woodmans Cottage, Kings Sombourne.

SMALL HOLDINGS.

A. CHEW, Callow Farm, Dymock, Gloucester.

PRIZE AWARDS, 1927.

*.*An animal designated in this list as the "reserve number" is entitled, *conditionally*, to succeed to any Prize that may become vacant in its class by reason of the animal placed above it by the Judges afterwards failing to qualify.

† Animals, where not otherwise stated, may be considered to have been bred by the Exhibitor.

ABBREVIATIONS EXPLAINED :—S., sire ; d., dam ; s.d., sire of dam ; y., year ; m., month ; w., week ; d., day ; R., Reserve ; V.H.C., Very Highly Commended ; H.C., Highly Commended ; C., Commended.

The Prizes in Classes 35, 57, 82, 149, 233, and the Special Local Hunter, Poultry, Pigeon and Rabbit Prizes, were offered by the Bath Local Committee.

HORSES.

SHIRE.

(Registered or eligible for registration in the Shire Horse Society's Stud Book).

CLASS 1.—*Shire Mare, in-foal, or with foal at foot.* [2 entries.]

I. (£15) and Medal A*—H. C. PATCH, Dial Farm, Barrow Gurney, dark bay, **Wyford Joan** (119221), foaled 1924, bred by Mrs. Lionel Fox Pitt, Wyford Shire Stud, Charter Abbey, Basingstoke ; s Haseley Tuckmaker (38844), d Haseley Miss Loftly (111838) (Vols. 44 and 46), s d Normandy Craftsman ; with foal.

II. (£10).—WM. J. CUMBER, Theale, Berks, black, **Crossways Negress** (114005), foaled 1922, bred by Owen Williams, Crossways, Cowbridge, Glamorgan ; s Herontye Goalkeeper (37496), d Orfold Black Girl (79071), s d King of Tandrige (24351) ; with foal by Oldport Parth.

CLASS 2.—*Shire Colt or Filly Foal, produce of Mare in Class 1.* [2 entries.]

I. (£5).—W. J. CUMBER, Theale, Berks.

II. (£3).—H. C. PATCH, Dial Farm, Barrow Gurney.

CLASS 3. *Shire Filly, foaled in 1926.* [2 entries.]

I. (£10).—WM. J. CUMBER, Theale, Berks, **Theale Eva** ; s Monks Green Friar, d Theale Eveline (115588), s d Theale Lockinge (35246).

II. (£5).—F. W. PARSONS & SONS, Speckington, Ilchester, bay, **Stapleton Rose Marie**, bred by G. Moody, Stapleton, Martock ; s Speckington Banker 2nd (39592), d Stapleton Wild Rose (110083), s d Feltwell Champion (32370).

CLASS 4.—*Shire Filly, foaled in 1925.* [1 entry.]

I (£10) and Reserve for Medal A*—WM. J. CUMBER, Theale, Berks, bay, **Theale Glitter** (120332); s Cippenham Friar (38110), d Downfield Glitter (114098), s d Abbotts Royal Blood (31147).

CLASS 5.—*Shire Filly, foaled in 1924.* [2 entries.]

I. (£10.)—H. C. PATCH, Dial Farm, Barrow Gurney, dark bay, **Wyford Joan** (119221), foaled 1924, bred by Mrs. Lionel Fox Pitt, Wyford Shire Stud, Charter Abbey, Basingstoke; s Haseley Tuckmaker (38844), d Haseley Miss Lofty (111838) (Vols. 44 and 46), s d Normandy Craftsman: with foal.

II. (£5.)—F. W. PARSONS & SONS, Speckington, Ilchester, chestnut, **Speckington Mistress** (118963); s Field Marshal 5th (35627), d Speckington Countess (110047), s d Speckington Coming King (35211).

CLASS 6.—*Shire Gelding (by a registered sire), foaled in or before 1923.*

—*First prize, £10—second, £5—third, £3.* [1 entry.]

[No EXHIBIT.]

CLASS 7.—*Shire Stallion, foaled in 1925.* [2 entries.]

I. (£10) and Challenge Vase†—WM. J. CUMBER, Theale, Berks, bay, **Theale Emperor** (39996), bred by A. Jones, Godstone, Surrey; s Basildon (lansman (36277), d Thames Empress (110247), s d Sherenden Champion.

II. (£5.)—F. W. PARSONS & SONS, Speckington, Ilchester, bay, **Speckington Footprint**; s Pendley Footprint (37728), d Wootton Manners 3rd (110718), s d Champion's (lansman (29221).

CLASS 8.—*Shire Colt, foaled in 1926.* [2 entries.]

I. (£10) and Reserve for Challenge Vase†—WM. J. CUMBER, Theale, Berks, grey, **Theale Cornelian** (Vol. 49), bred by T. J. Mott, Littleport; s Theale Lockinge (35246), d Littleport Bess (94117), s d Shustoke Blusterer (32821).

II. (£5.)—W. G. BUCHANAN, Manor House Farm, Abergavenny, bay, **Gobion Friar Tuck**; s Monnow (raftsman (39555), d Medlar Bella (89533), s d Friar Tuck 4th (31447).

Medals given by the Shire Horse Society under Condition 47.

*(A) A Gold Medal, or the sum of £5, for the best Mare or Filly in the Shire Horse Classes, the property of a Member of the Bath and West Society elected not less than six months previous to April 6, 1927, and to the Breeder of the winner under the Condition stated, a prize of £2.

† "THE CITY OF BATH CHALLENGE VASE."

Presented by the Corporation of Bath (Cedric Chivers, Mayor, 1923), to be competed for annually and to be held by the winner for one year. For the best Shire Stallion exhibited.

SUFFOLK.

£20 towards the Prizes in Classes 9 to 13 were given by the Suffolk Horse Society).

CLASS 9.—*Suffolk Mare, in-foal, or with foal at foot.* [3 entries.]

I. (£10.)—Mrs. EVELYN RICH, Wretham Hall, Thetford, Norfolk, chestnut, **Wretham Antirithum** (11726), foaled 1922, bred by Saxton Noble, Kent House, London; s Mendham Gold Boy (4225), d Bragg (6882) s d Berners Neptune (3005); with foal at foot.

II. (£5.)—The VISCOUNT FOLKESTONE, Estate Office, Longford Castle, Salisbury, **La Invernada Comet Star**, foaled 1922; s Comet d Burgh Stella, with foal by Woolverstone Buccaneer.

CLASS 10.—*Suffolk Colt or Filly Foal, produce of Mare in Class 9.*
[3 entries.]

I. (£5.)—Mrs. E. RICH, Wretham Hall, Thetford, Norfolk.

II. (£3.)—HOLLESLEY BAY COLONY, Hollesley, Suffolk; foaled January 19th, 1927.

R.—VISCOUNT FOLKESTONE, Estate Office, Longford Castle, Salisbury; foaled April 2nd, 1927.

CLASS 11.—*Suffolk Gelding (by a registered sire), foaled in or before 1923.* [2 entries.]

I. (£10.)—Mrs. EVELYN RICH, Wretham Hall, Thetford, chestnut, **Colonel**, foaled 1920, bred by F. C. Burton; s Matchless (4628), d Dainty (8469).

II. (£5.)—Mrs. EVELYN RICH, chestnut, **Potboy**, foaled 1922, bred by W. Bevan, Plackwood, Haughley, Suffolk; s Morston Gold Guard (4234), d Blackwood Poppy (9057).

CLASS 12.—*Suffolk Filly, foaled in 1924 or 1925.* [5 entries.]

I. (£10.)—HOLLESLEY BAY COLONY, Hollesley Bay, Suffolk, whole chestnut, **Colony Melody** (13491), foaled 1925; s Bawdsey Hay (4188), d Colony Beauty (8742), s d Marshall Ney (3385).

II. (£5.)—Mrs. EVELYN RICH, Wretham Hall, Thetford, chestnut, **Willingham Belvine** (12943), foaled 1924, bred by William R. Frost, Willingham Hall, Beccles; s Admiral John (5127), d Willingham Belinda (10676), s d Henham Blake (4728).

III. (£3.)—Lieut.-Col. W. E. HARRISON, Wychnor Park, Burton-on-Trent, chestnut, **Wychnor Wendy** (13673), foaled 1925, s Bawdsey Wassail (5586), d Bawdsey Wench (10825), s d Bawdsey Varlet (4390).

R.—A. PRESTON JONES, Mickleover House, Derby, red chestnut, **Mickleover Sunshine** (13368), foaled 1925; s Horstead Punchingello (5096), d Sudbourne Moonlight (8623), s d Sudbourne Peter (3955).

CLASS 13.—*Suffolk Stallion, foaled in 1924 or 1925.* [5 entries.]

I. (£10.)—**HOLLESLEY BAY COLONY**, Hollesley, Suffolk, whole chestnut, **Colony Proctor** (5765), foaled 1924; s **Morston Connaught** (4590), d **Colony Maid** (7927), s d **Bawdsey Reaper** (3635).

II. (£5.)—**Lieut. Col. W. E. HARRISON**, Wychnor Park, Burton-on-Trent, chestnut, **Sir Harry of Morston** (5676), foaled 1924, bred by R. H. Wrinch, Harkstead, Ipswich.

III. (£3.)—**Lieut. Col. W. E. HARRISON**, red chestnut, **Beau Brummel of Wychnor** (5863), foaled 1925, bred by W. Robertshaw, Great Moulton, Tivetshall, Norwich; s **Sudbourne K** (4692), d **Rose** (8640), s d **Wedgewood 3rd** (3812).

R.—**HENRY SPENCE HORNE**, Aldsworth, Emsworth, Hants, chestnut **Bawdsey Kwang Su** (5700), foaled 1925, bred by Sir Cuthbert Quilter, Bawdsey, Woodbridge; s **Framlingham Allenby** (4826), d **Bawdsey Porcelain** (10404), s d **Earl Gray** (4219).

H.C.—**Mrs. EVELYN RICH**, Wretham Hall, Thetford, chestnut, **Wretham Pilot** (5608), foaled 1925, bred by Saxton Noble, Kent House, London; s **Sudbourne Beauchief** (4215), d **Wretham Cherry** (9555), s d **Clarion** (3663).

HUNTERS.

CLASS 14.—*Hunter Mare, in-foal, or with foal at foot.* [1 entry.]

I. (£15), and Special Local Prize (£5)* and Medal E†.—**G. FORD-TILLEY**, Alstone Court, Highbridge, brown, **Patience**, with foal by **Clarendon**.

CLASS 15.—*Hunter Colt or Filly Foal, produce of Mare in Class 14.* [1 entry.]

I. (£5.)—**G. FORD-TILLEY**, Alstone Court, Highbridge.

CLASS 16.—*Hunter Filly, Colt or Gelding, foaled in 1926.* [7 entries.]

I. (£10.)—**Sir HENRY H. A. HOARE**, Bart., Stourhead, Zeals, S.O., Wilts, chestnut gelding, **Tide**; s **Tidal Wave**, d **Lady Dorchester** (6697), s d **Barbed Fence**.

SPECIAL LOCAL PRIZE—C.

* Given by the Bath Local Committee, for the Best Animal in Class 14 exhibited by a Resident within a radius of 30 miles of the Guildhall, Bath.

MEDAL E.

† Given by the Hunters' Improvement and National Light Horse Breeding Society, under Condition 48. A Gold Medal, or £5 and a Bronze Medal, for the best Hunter Brood Mare in Class 14, registered with a number in the Hunter Stud Book, at the time of entry or within a month of the award, not having previously won the above-named Society's Gold Medal as a Brood Mare in 1927, and which must have her foal at foot, or produce a living foal in 1927 to a Thoroughbred Horse or Registered Hunter sire.

(Only Prize Winners in the Class were eligible for the Medal).

II. (£5.)—FRANK C. MINOPRIO, Avening Court, Avening, Glos., bay filly, **Aven Novice**; s Ballyvodock, d Bessie.

III. (£3.)—Major H. DENISON PENDER, Strangways, Marnhull, Dorset, bay filly, **Red Wave**; s Tidal Wave, d Pavlova 3rd, H.I.S.B. (5828).

R.—WALTER J. FRYER, C.B.E., Holme Park, Sonning, Berks, bay filly, **La-Tanta** (Vol. II, 6643, H.S.B.); s Tantamount, d Larch, s d Birk Gill.

CLASS 17.—*Hunter Filly, Colt or Gelding, foaled in 1925.* [8 entries.]

I. (£10.)—Mrs. SOFER WHITBURN, Amport St. Mary, Andover, Hants, chestnut filly, **Translucent**; s Political, d Glass Doll

II. (£5.)—GEORGE DICKENSON, Cark Mills, Cark-in-Cartmel, brown gelding, **Cark Silver Mascot**; s Silver Grill, d Cark Bridgett (Vol. X., 6265).

III. (£3.)—Captain J. A. HERBERT, Coldbrook, Abergavenny, bay gelding, **Hellodore**; s Tidal Wave, d Lady Lucy, s d Red Prince.

R.—FRANK C. MINOPRIO, Avening Court, Avening, Glos., brown filly, **Bath Bun** (6815), — Clarke, Ridgeway Farm, Crudwell; s Moorside 2nd, d Chapetown 2nd.

CLASS 18.—*Hunter Filly or Gelding, foaled in 1924.* [8 entries.]

I. (£10.)—GEORGE DICKINSON, Cark Mills, Cark-in-Cartmel, chestnut filly, **Cark Silver Sign**; s Silver Grill, d Cark Columbine, s d Underbread.

II. (£5.)—WALTER J. FRYER, C.B.E., Holme Park, Sonning, Berks, chestnut filly, **Gaylarch** (Vol. II, 6553, H.S.B.): s Gay Lally, d Larch, s d Birk Gill.

III. (£3.)—MISS WELLESLEY, Ford House, Churchinford, Chard, Som., brown gelding, **Eiffel** (H.S.B. 976), bred by Harold Worral, Bagborough, Som.; s The Tower, d Bright Eyes (H.S.B. 6566), s d Red Prince 2nd.

R.—WALTER J. FRYER, C.B.E., Holme Park, Sonning, Berks, bay gelding, **Louvig** (Vol. II, 898, H.S.B.); s Vigorous 2nd, d Louviers Queen, s d Louviers.

ARABS AND PONIES.

ARAB.

Entries in Class 19 must have been registered or accepted for registration in the Arab Horse Stud Book.

(£25 towards the Prizes in this Class were given by the Arab Horse Society.

CLASS 19.—*Arab Colt, Filly or Gelding, foaled in 1924, 1925 or 1926.* [10 entries.]

I. (£15) and Silver Medal F* —EDWARD HURTLEY, Crowborough Warren, Sussex, grey stallion, **Nissr**, foaled 1925; s Mimr, d Lalla Rookh.

SILVER MEDAL given by the Arab Horse Society.

*(F) Best Colt in Class 19.

II. (£12.)—Mrs. H. V. MUSGRAVE CLARK, Iford, near Lewes, brown colt, **Shadrach**, foaled 1924 ; s Nimr, d Safarjal.

III. (£8.)—C. W. HOUGH, Hydes, Abridge, Essex, chestnut colt, **Amizada**, foaled 1925 ; s Shahzada, d Amida, s d Ibn Tashmak.

IV. (£5) and Silver Medal G.†—Mrs. CHARLES E. WALLER (Mrs. P. L. Cunliffe Adamson), Rokeby House, near Rugby, grey mare, **Almas**, foaled 1924, bred by C. W. Hough, Hydes, Abridge, Romford, Essex ; s Nuri Pasha, d Amida, s d Ibn Yashmak.

R.—R. ADRIAN VALLANCE, Harecroft Hall, Gosforth, Cumberland, bay stallion, **Abana**, foaled 1924, bred by H. F. MacLachlan, Sytal, Cheshire ; s Raml, d Rorobird, s d Rohan.

POLO AND RIDING PONY.

Animals in Classes 20 and 21 must have been entered in the National Pony Stud Book or registered in the approved Mare Register.

CLASS 20.—*Polo and Riding Pony Mare, not exceeding 15 hands, in-foal or with foal at foot.* [10 entries.]

I. (£10) and Silver Medal H*—Miss HELEN METCALFE, Beacons Close, Kingston, near Taunton, chestnut, **Biddy**, foaled 1918, bred by Captain Smythies, R.N., Dial House, Wincanton ; s Gay Lally, d Actress, s d Yard Arm ; with foal by Clarendon.

II. (£5.)—EDWIN A. TINNEY, Truro, Cornwall, grey, **Silver**, foaled in 1916 ; s Irish Linen, d May Queen ; in foal to Favourite.

III. (£3.)—Miss HELEN METCALFE, bay, **Periwinkle**, foaled 1920 ; with foal by Clarendon.

R.—Mrs. PHILIP HUNLOKE, Cowbridge, Malmesbury, chestnut, foaled 1916, bred by Miss Calmady-Hamlyn, Pearroe Vean, Buckfast ; s Barbed Fence, d Junkett ; with foal by Roseland.

H.C.—Mrs. JANET GORDON, How Caple Cross, Ross-on-Wye, dark brown, **Wendy 2nd**, foaled 1914 ; s entered in Approved N.P.S.B., d mare reg. Page No. 131 with foal by Brest.

CLASS 21.—*Polo and Riding Pony Filly or Gelding, foaled in 1923, 1924 or 1925.* [5 entries.]

I. (£10.)—Miss B. G. CORY-WRIGHT, Ayot Place, Welwyn, Herts, chestnut gelding, **Cherry Sauce**, foaled 1924 ; s Cherry Tint, d Beano 2nd, A.M.B.

II. (£5.)—Miss NORAH DAWSON, Holne Park, Ashburton, S. Devon, chestnut filly, **Bandage**, foaled 1924, bred by the late C. Howard Taylor, Middlewood Hall, Barnsley ; s The Marne, d Calico, s d Don Patricio.

III. (£3.)—T. C. ARMITAGE, Dene Court, Taunton, Som., chestnut filly, **Sahra**, foaled 1925 ; s Crosbie, d Seriya, s d Showronek.

R.—Mrs. A. V. BLAKE, South Harp, S. Petherton, grey colt, **Southern Cross** ; s Sahara (847), d Irish Delight, s d Dermot McCarthy.

SILVER MEDAL given by the Arab Horse Society.

†(G) Best Filly in Class 19.

SILVER MEDAL H.

* Given by the National Pony Society, for the Best Exhibit in Class 20.

SHETLAND PONY.

CLASS 22.—*Shetland Mare, not exceeding 10.2 hands, in-foal, or with foal at foot.* [5 entries.]

I. (£10.)—Mrs. ETTA DUFFUS, Penniwells, Elstree, Herts, black, **Mayfair of Penniwells** (4052), foaled 1918; s Vagary of Penniwells (841), d Mayfly of Penniwells (2582), s d Glencairn (314); with foal by Dibblitz of Penniwells (1087).

II. (£5.)—Mrs. BETTY COX, Marshwood Manor, near Bridport, Dorset, black, **Annita of Earlshall** (Vol. 31, P. 36), foaled 8th May, 1923, bred by R. W. R. Mackenzie, Earlshall, Leuchars, Fife; s Gluss Norseman (759), d Gluss Nellie (2123), s d Jack (118); with foal by Empire Day (539).

CLASS 23.—*Shetland Stallion, not exceeding 10.2 hands, foaled before 1924.* [5 entries.]

I. (£10) and Silver Cup*—Mrs. ETTA DUFFUS, Penniwells, Elstree, Herts, black, **Dibblitz of Penniwells** (1087), foaled 1920; s Blitz (848), d Diddy (2193), s d Diamond (257).

II. (£5) and R for Silver Cup*—Mrs. ETTA DUFFUS, black, **Herackles** (1056), foaled 1920, bred by Mrs. B. E. Hervey-Bathurst, Gortinanone, Tayinloan, Argyleshire; s Helium (452), d Sonia of Preshaw (3466), s d Solon of Transy (624).

III. (£3.)—Miss NORAH DAWSON, Holne Park, Ashburton, S. Devon, piebald, **Jack 2nd of Blackcombe**, foaled 1921, bred by A. H. Fox-Brockbank, The Croft, Kirksanton, Cumberland; s Cafe Creme (481), d Dame of Earlshall (2954).

R.—Mrs. BETTY COX, Marshwood Manor, near Bridport, Dorset, grey, **Bohemian of Earlshall** (1079), foaled 1921, bred by R. W. R. Mackenzie, Earlshall, Leuchars, Fife; s Gluss Norseman (759), d Bohea of Earlshall (3923), s d Helmet of Earlshall (408).

DARTMOOR PONY.

(£10 towards the Prizes in these Classes were given by the Dartmoor Pony Society, and the animals must have been registered, or eligible for registration in that Society's Stud Book. Unregistered animals must have been registered within one month from the termination of the Show).

CLASS 24.—*Dartmoor Mare, any age, not exceeding 12.2 hands, in-foal or with foal at foot.* [6 entries.]

I. (£10.)—Mrs. JOAN VINSON-THOMAS, Little Lyndridge, Okehampton, bay, **Lyndridge Moorhen** (5441), foaled 1917, bred by A. Hodge, Higher Halstock, Okehampton; with foal by His Knibbs of Lyndridge.

II. (£5.)—R. J. HARD, Moorcross, Cornwood, near Ivybridge, Devon, black, **Black Bess 20th** (4989, Vol. XIX, N.S.P.B.), foaled 1915, bred by G. Sellick, Lee Moor, Cornwood, near Ivybridge; with foal.

* Given by J. C. Duffus, Esq., of Penniwells, Elstree, Herts, for the Best Exhibit in Classes 22 and 23.

III. (£3.)—MRS. JOAN VINSON-THOMAS, dark brown, **Lyndridge Dartmoor Lady** (5259), foaled 1919, bred by the late — Cottle; with foal by His Knibbs of Lyndridge.

R.—R. J. HARD, brown, **Queenie 8th** (5238, Vol. XIX, N.P.S.B.), foaled 1918, bred by R. Hine, late of Zeaston, South Brent, Devon; with foal.

CLASS 25.—*Dartmoor Stallion, any age, not exceeding 12.3 hands.*
[3 entries.]

I. (£10.)—MRS. JOAN VINSON-THOMAS, Little Lyndridge, Okehampton, bay, **His Knibbs of Lyndridge** (1310), foaled 1921, bred by A. Hodge, Higher Halstock Okehampton.

II. (£5.)—MISS CALMADY-HAMLYN, Pearroc Vean, Buckfast, black, **Jolly Jankin**, foaled 1922, bred by G. Mortimore, Junr., Collihole Farm, Chagford.

III. (£3.)—MRS. JOAN VINSON-THOMAS, bay, **Lyndridge Tinkle** (1443), foaled 1925, bred by C. Jordan, Redstone Farm, Bratton, Clovelly, Devon; s The Leat (1068), d Lyndridge Tinsell (5232), s d Dart.

EXMOOR PONY.

(£10 towards the Prizes in these Classes were given by the Exmoor Pony Society, and the animals must have been registered, if eligible for registration, in the Exmoor Pony Society's Stud Book; must have been shown in "natural condition," and not got up for Show. Prize-winning Animals, if not already registered, must have been registered and branded within one month after the termination of the Show).

CLASS 26.—*Exmoor Mare, 2 years old and over on May 24, 1927, not exceeding 12.2 hands, with or without foal at foot, to be led.* [11 entries.]

I. (£10.)—SYDNEY JOHN WESTCOTT, Zeal Hawkridge, Dulverton, bay, **No. 11** (4886), foaled 1922.

II. (£5.)—TOM PRING, Great Champson, Molland Botreaux, Barnstaple, **No. 1** (4842), bred by the late William Pring, Withycombe, Winsford.

III. (£3.)—MRS. POLLY WESTCOTT, Tarr Steps Farm, Dulverton, Somerset, bay, **No. 6**, foaled 1925; s Exhibitor's No. 1 (1252), d Exhibitor's No. 2. (4873).

R.—SYDNEY JOHN WESTCOTT, bay, **No. 12**, foaled 1924; s C. M. Westcott's No. 1 (1251), d Exhibitor's No. 3 (4878).

CLASS 27.—*Exmoor Stallion, 2 years old and over on May 24, 1927, not exceeding 12.3 hands, to be led.* [9 entries].

I. (£10.)—LIEUT.-COL. WALTER WILLIAM WIGGIN, M.F.H., Exford, Taunton, Somerset, brown, **No. 3**, foaled 1924; s Exhibitor's No. 1, d Exhibitor's No. 2.

II. (£5.)—LORD POLTIMORE, Court Hall, North Molton, N. Devon, brown, **Brownie** (1244), No. 3, F.S., foaled 1920.

III. (£3.)—SYDNEY JOHN WESTCOTT, Zeal Hawkridge, Dulverton, bay, **No. 5**, foaled 1923; s Exhibitor's No. 2 (1253), d Exhibitor's No. 9 (4884).

R.—LADY MOUNTAIN, Oare Brendon, N. Devon, dark brown, 14, **No. 2** (1248), foaled 1918, bred by the late Sir T. D. Acland.

WELSH MOUNTAIN PONY.

CLASS 28.—*Welsh Mountain Pony Mare, not exceeding 12 hands, in foal or with foal at foot.* [4 entries.]

I. (£10.)—MRS. H. D. GREENE, Grove, Craven Arms, Salop, brown, **Grove Firelight** (6037), foaled 1917; s Ch. Shooting Star (73 W.S.B.), d Grove Twilight (3017), s d Grove Ballistite (200); with foal by Grove King Cole 2nd (565).

II. (£5.) MRS. PHILLIP HUNLOKE, Cowbridge, Malmesbury, Wilts, grey, **Grove Dora**, foaled 1916, bred by Mrs. Green; s Ch. Bleddfa (73), d Grove Dolly (1486), s d Dick Hill (49); in foal to Llwyn Temptation.

III. (£3.)—MATTHEW WILLIAMS, Brynheulog, Llantwit Varda, grey, **Nance of Bryn** (W.S.B. 6962), foaled 1915, bred by Isaac Williams, Llandoc, Pimspport, Llanwrda, R.S.O.; s Ch. Starlight (587) d Mountain Pony, s d Dyoll Starlight (4); with foal by Varda Shot.

CLASS 29.—*Welsh Mountain Pony Stallion, not exceeding 12 hands, foaled in or before 1924.* [3 entries.]

I. (£10.)—MRS. H. D. GREENE, Grove, Craven Arms, Salop, grey, **Grove Sprightly** (W.S.B. 1036), foaled 1918; s Ch. Shooting Star (73 W.S.B.), d Grove Sprite 2nd (4431), s d Grove Ballistite (200).

II. (£5.)—HAMILTON WALKER CRAWFORD, Solicitor, Swansea, dark grey, **Faraam Cocoa-Nibs** (1207), foaled 1921, bred by F. Ffitch Mason, The Faraam, Killay, Swansea; s Grove Elfin, d Clumber Miss Noko.

III. (£3.)—MRS. WHITBURN and MRS. HUNLOKE, Cowbridge, Malmesbury, grey, foaled 1922, bred by Marshall Dugdale; s Kilhendre Celtic Silversight (953), d Llwyn Tempter (6086), s d Temptation (527 W.S.B.).

RIDING CLASSES.

HUNTER.

CLASS 30.—*Hunter Mare or Gelding, foaled before 1924, that had not won a prize of £10 or over under saddle at any Show held previous to April 1, 1927.* [18 entries.]

I. (£10.)—CONSTANCE DUCHESS OF WESTMINSTER, Malwood Lodge, Minstead, Hants, chestnut gelding, **Conspicuous**, foaled 1920; s Dean's Cap, d Cracken-thorpe.

II. (£5.)—EDGE CUMBE SINCLAIR, Manor Close, Chislehurst, Kent, bay gelding foaled 1922; s Ednem.

III. (£3.)—J. KENNETH STEVENSON, The Chase, Upper Welland, Malvern, Worcs., bay gelding, **Sandbox**, foaled 1922; s Sandstone.

R. and Special Local Prize I (£5)*—MRS. PHILIP HUNLOKE, Cowbridge, Malmesbury, grey gelding, **C. in C.**, foaled 1901; s Mundford, d by H.R.H.

H.C. and R for Special Local Prize I*—Lieut.-Col. G. C. BIRDWOOD, 2, Queen's Parade, Bath, chestnut gelding, **Shamrock**, foaled 1922; s John Gay, d Strong Drink.

SPECIAL LOCAL PRIZE—I.*

* Given by the Bath Local Committee, for the Best Exhibit in Class 30, the property of a Resident within 30 miles of the Guildhall, Bath.

H.C.—Miss BUSFIELD, Raysfield, Chipping Sodbury, bay gelding, **The Hart** foaled 1921.

H.C.—FRANK C. MINOPRIO, Avening Court, Avening, Glos., chestnut gelding, **Bath Oliver** (982), foaled 1922; s Thory, d Elector, s d Pall Mall.

CLASS 31.—*Hunter Mare or Gelding, foaled in 1923.* [5 entries.]

I. (£10.) and R. for Medal J*—Hon. H. PONSONBY, Lechlade, Glos., bay gelding, **Shilleagh**; bred by B. Kenny, near Carhew, Co. Wicklow; s the Giant, s d Agar.

II. (£5.)—H. MITCHELL, Pertwood, Hindon, Wilts, bay gelding, **Lally**; s Gay Lally.

III. (£3.)—R. B. HOARE, Sutton Veny, chestnut gelding, **Saucebox**; s Gay Lally, d Diana, s d Chieftain.

CLASS 32.—*Hunter Mare or Gelding, foaled before 1924 and not more than 8 years old, to carry not more than 12 stone 7lbs.* [12 entries.]

I. (£20.)—W. CONNOLLY, The Lowndes Arms, Whaddon, Bletchley, bay gelding, **Sea Eagle**, foaled 1921; bred by Colonel Bullard, Northrepps, Norwich; s Jutland, d Mona 3rd.

II. (£10.)—EDGE CUMBE SINCLAIR, Manor Close, Chislehurst, Kent, bay gelding, foaled 1922; s Ednem.

III. (£3.)—J. KENNETH STEVENSON, The Chase, Upper Welland, Malvern, Worcs., bay gelding, **Sandbox**, foaled 1922; s Sandstone.

R.—Miss BUSFIELD, Raysfield, Chipping Sodbury, bay gelding, **The Hart**, foaled 1921.

H.C.—MRS. ELSIE MAYNE, Charlton House, Radstock, Somerset, bay mare, **Bettilla**, foaled 1921, bred by Miss E. K. Reading, 17, Lancecost Road, Tulse Hill, S.W.2.; s General Villa, d Little Betty, s d Galashiels.

CLASS 33.—*Hunter Mare or Gelding, foaled before 1924 and not more than 8 years old, to carry over 12 stone 7lbs. and under 14 stone.* [7 entries.]

I. (£20.)—CONSTANCE DUCHESS OF WESTMINSTER, Malwood Lodge, Minstead, Hants, chestnut gelding, **Conspicuous**, foaled 1920; s Dean's Cap, d Cracken-thorpe.

II. (£10.)—ALLAN J. PASKE, The Court, Hampton Bishop, Hereford, bay gelding, **Sunset**, foaled 1921; s Heliotrope.

MEDAL J.

* Given by the Hunter's Improvement and National Light Horse Breeding Society, under Condition No. 49. A Silver Medal, or £1 (at the option of the winner), for the best Hunter Mare or Gelding of any age, exhibited in Classes 30 to 35 by a member of the Hunters' Improvement and National Light Horse Breeding Society, whose application for membership must have been lodged within a month of the award. (Only Prize winners in the Classes were eligible for this Medal).

III. (£3.)—Mrs. P. HUNLOKE, Cowbridge, Malmesbury, grey gelding, **C. in C.**, foaled 1901 ; s Mundford, d by H.R.H.

R.—Lieut.-Col. G. C. BIRDWOOD, 2, Queen's Parade, Bath, chestnut gelding, **Shamrock**, foaled 1922 ; s John Gay, d Strong Drink.

CLASS 34.—Hunter Mare or Gelding, foaled before 1924 and not more than 8 years old, to carry 14 stone or over. [9 entries.]

I. (£20.)—J. KENNETH STEVENSON, The Chase, Upper Welland, Malvern, Worcs., bay gelding, **Ambition**, foaled 1920, bred by Clifford Nicholson, Barton-on-Humber, Lincs. ; s Gay Boy, s d Travelling lad.

II. (£10) and Medal J*—Mrs. SAVILE PETCH, Milborne Port, Somerset, chestnut gelding, Roughwood, foaled 1921 ; s Maccanna, s d Spry Royal.

III. (£3.)—Lieut.-Col. G. C. BIRDWOOD, 2, Queen's Parade, Bath, chestnut gelding, **Flannaghan**, foaled 1922 ; s Desborough, d Knave of Hearts.

R.—Hon. H. PONSONBY, Lechlade, Glos., bay gelding, **Shilleagh** ; bred by B. Kenny, near Carhew, Co. Wickloe ; s the Giant, s d Agar.

Given by the Bath Local Committee and confined to residents within a radius of 30 miles of the Guildhall, Bath.

CLASS 35.—Hunter Mare or Gelding, owned, ridden and judged by a lady. [9 entries.]

I. (£10.)—Mrs. PHILIP HUNLOKE, Cowbridge, Malmesbury, grey gelding, **C. in C.**, foaled 1901 ; s Mundford, d by H.R.H.

II. (£5.)—Mrs. SAVILE PETCH, Milborne Port, Somerset, chestnut gelding, **Roughwood**, foaled 1921 ; s Maccanna, s d Spry Royal.

III. (£3.)—Miss BUSFIELD, Raysfield, Chipping Sodbury, bay gelding, **The Hart**, foaled 1921.

IV. (£2.)—Mrs. A. C. VIGORS, Ebbor Farm, Wells, Somerset, strawberry roan, **Dun Leoghraille**.

R. and C.—Mrs. E. MAYNE, Charlton House, Radstock, Somerset, bay mare, **Bettilla**, foaled 1921, bred by Miss E. K. Reading, 17, Lancecost Road, Tulse Hill, S.W.2. ; s General Villa, d Little Betty, s d Galashiels.

HACK AND RIDING PONY.

CLASS 36.—(Novice Class). *Hack Mare or Gelding, any height, that had not won a prize of over £5 in value as a Hack at any Show held previous to April 1, 1927, ridden on the 2nd day of the Show.* [9 entries.]

I. (£10.)—Mrs. P. HUNLOKE, Malmesbury, bay mare, **Trilby**.

II. (£5.)—The Lady PENBYHN, Wicken Park, Stony Stratford, Bucks, grey gelding, **Valentine**.

III. (£2.)—Mrs. B. W. ROBINSON, Peewits Mill, Cirencester, chestnut gelding, **Irish Cove**.

R.—Miss B. G. CORY-WRIGHT, Ayot Place, Welwyn, Herts, chestnut mare, **Falloch Asthore**.

CLASS 37.—*Hack Mare or Gelding, any height, ridden and judged by a lady on the 3rd day of the Show.* [11 entries.]

I. (£10.)—Mrs. PHILIP HUNLOKE, Cowbridge, Malmesbury, Wilts., chestnut mare, **Bim-Bim**.

II. (£5.)—EDWIN HOCKING, Modder House, Breage, Helston, Cornwall, brown gelding, **Jazz**.

III. (£2.)—Miss B. G. CORY-WRIGHT, Ayot Place, Welwyn, chestnut mare, **Falloch Asthore**.

R.—Mrs. PHILIP FLEMING, Grendon Hall, Grendon, Underwood, Bucks, chestnut mare, **Bubbles**.

V.H.C.—Miss WELLESLEY, Ford House, Churchinford, Chard, Som., chestnut gelding, **San-Toy**.

CLASS 38.—*Hack Mare or Gelding, 15 hands and over, ridden on the 3rd day of the Show.* [12 entries.]

I. (£10.)—Mrs. P. HUNLOKE, Cowbridge, Malmesbury, chestnut mare, **Bim-Bim**.

II. (£5.)—E. HOCKING, Breage, Helston, Cornwall, brown gelding, **Jazz**.

III. (£2.)—Mrs. P. FLEMING, Grendon Underwood, Bucks, chestnut mare, **Bubbles**.

R.—The LADY PENRHYN, Stony Stratford, grey gelding, **Valentine**.

V.H.C.—Mrs. B. W. ROBINSON, Cirencester, chestnut gelding, **Irish Cove**.

CLASS 39.—*Hack Mare or Gelding, under 15 hands, ridden on the 4th day of the Show.* [10 entries.]

I. (£10.)—Mrs. P. HUNLOKE, Cowbridge, Malmesbury, **Trilby**.

II. (£5.)—Mrs. PHILIP FLEMING, Grendon Hall, Grendon Underwood, Bucks, chestnut mare, **Roseleaf 2nd** (5314).

III. (£2.)—Miss M. M. PARKES, Lapal House, Quinton, Birmingham, chestnut gelding, **The Knight**.

R.—Lieut.-Col. C. CRAWSHAY, Swallet House, Christian Malford, Chippenham, skewbald gelding, **Starflight**.

H.C.—F. CLIFFORD, The Park, Minehead, **Red Tail**.

CLASS 40.—*Polo Pony, not over 15 hands, 4 years old and over, ridden on the 4th day of the Show and judged by a Polo Pony Judge—*
[7 entries.]

I. (£10) and Silver Medal*—F. CLIFFORD, Minehead, **Red Tail**.

II. (£5) and R. for Silver Medal*—Miss B. G. CORY-WRIGHT, Ayot Place, Welwyn, chestnut mare, **Falloch Asthore**.

III. (£2).—S. PETCH, Milborne Port, **Susie**.

R.—Mrs. S. PENWARDEN, Holsworthy, **Lady Diana**.

CHILDREN'S PONY.

[*Whips were presented to the best Boy and best Girl Riders in these Classes.*]

CLASS 41.—*Pony, not over 13 hands, suitable for and ridden by a child not over 12 years of age last birthday, on the 1st day of the Show.*
[10 entries.]

I. (£5).—Miss DOREEN HUNT, Fair View, Manston, Sturminster Newton, brown mare, **Odd Socks**.

II. (£4).—Mrs. PHILIP HUNLOKE, Cowbridge, Malmesbury, Wilts, grey gelding, **Wingerworth Propellor**.

III. (£2).—Miss HEATHER GORDON, Redlands Court, Highworth, chestnut mare, **Sunshine**.

IV. (£1).—Miss OLIVE RICKS, Hatch Farm, Addlestone, Surrey, bay mare, **Cosy**.

R.—Captain LIDDELL GRAINGER, Ayton Castle, Berwickshire, black mare, **Black Pearl**.

CLASS 42.—*Pony, not over 14 hands, suitable for and ridden by a child not over 14 years of age last birthday, on the 5th day of the Show.*
[11 entries.]

I. (£5).—V. PARRY, Riding School, Cheltenham, **Autumn Ale**.

II. (£4).—Major R. M. STUART RICHARDSON, Dauntsey, Chippenham, **Golden Arrow**.

III. (£2).—Lady MURIEL LIDDELL GRAINGER, Ayton Castle, Berwickshire, grey mare, **Quicksilver**.

IV. (£1).—Hon. Mrs. CRAVEN, Wadley Manor, Faringdon, **Kitty**.

H.C.—Miss O. RICKS, Hatch Farm, Addlestone, Surrey, chestnut mare, **Barley Sugar**.

CLASSES 43 & 44.—*Remount selling Classes—Cancelled.*

*Given by the National Pony Society under Condition No. 51. Best Exhibit in Class 40, subject to there being a minimum of 4 entries in the Class.

DRIVING.

CLASS 45.—[*Novice Class*]. *Mare or Gelding, not over 14 hands, that had not previously won a prize of over £5 in value in Single Harness at any Show held previous to January 1, 1927, driven on the 2nd day of the Show.* [11 entries.]

I. (£10.)—FRANK C. MINOPRIO, Avening Court, Avening, Glos., brown filly, **Castlemae Gee Whizz** (26315).

II. (£5.)—MRS. SOFER WHITBURN and MRS. PHILIP HUNLOKE, Ampot St. Mary, Andover, bay gelding, **Glantham Marvel**.

III. (£3.)—HENRY E. NICHOLLS, Goose Green Farm, Yate, Glos., brown gelding, **Gay Laddle**.

IV. (£2.)—MISS K. M. HASSARD, 41, Palace Road, London, S.W.2, bay gelding, **Naughty Spark**.

R.—A. E. JONES, Gabolfa, Cardiff, bay, **Heathfield Boy**.

CLASS 46.—[*Novice Class*]. *Mare or Gelding, over 14 and not over 15 hands, that had not previously won a prize of over £5 in value in Single Harness at any Show held previous to January 1, 1927, driven on the 2nd day of the Show.* [5 entries.]

I. (£10.)—S. J. WELLBELOVED, Lewisham, bay mare, **Glenavon Collete**.

II. (£5.)—H. J. COLEBROOK, Fulmer, Bucks, bay mare, **Buckley Bountiful**.

III. (£3.)—FRANK C. MINOPRIO, Avening Court, Avening, Glos., skewbald filly, **Brynhir Belle** (26081).

IV. (£2.)—HENRY E. NICHOLLS, Goose Green Farm, Yate, Glos., bay gelding, **Whisky**.

CLASS 47.—[*Novice Class*]. *Mare or Gelding, over 15 hands that had not previously won a prize of over £5 in value in Single Harness at any Show held previous to January 1, 1927, driven on the 2nd day of the Show.* [5 entries.]

I. (£10.)—H. WHITLEY, Primley, Paignton, brown mare, **Primley Niobe**.

II. (£5.)—FRANK C. MINOPRIO, Avening Court, Avening, Glos., brown gelding, **Cestrian Leader**.

III. (£3.)—H. W. WETTEN, Bath wick, Bath, black gelding, **St. Mellons A.I.**

IV. (£2.)—MRS. A. CREASE, Stud Farm, Keynsham, skewbald mare, **Queenie**.

CLASS 48.—*Pair of Mares or Geldings, any height, driven in Double Harness on the 3rd day of the Show.* [2 entries.]

I. (£15.)—H. J. COLEBROOK, Fulmer, Bucks.

II. (£7.)—FRANK C. MINOPRIO, Avening Court, Avening, Glos., skewbald filly and gelding, **Brynhir Belle** and **Brynhir Beau**.

CLASS 49.—*Tandems, Mares or Geldings, any height, driven on the 3rd day of the Show.* [2 entries.]

I. (£15.)—H. J. COLEBROOK, Fulmer, Bucks.

II. (£7.)—F. C. MINOPRIO, Avening Court, Glos., skewbald filly and gelding, **Brynhir Belle** and **Brynhir Beau**.

CLASS 50.—*Mare or Gelding, not exceeding 14 hands, driven on the 4th day of the Show.* [10 entries.]

I. (£15.)—R. BELCHER, West Bromwich, **Glenavon Gunfire**.

II. (£7) and R for Medal*—Miss KATHLEEN MARY HASSARD, 41, Palace Road, S.W.2, bay gelding, **Naughty Spark**.

III. (£3.)—F. L. WALKER, 21, Meadow Street, Cardiff, **Bookley Firegirl**.

IV. (£2.)—Mrs. SOFER WHITBURN and Mrs. PHILIP HUNLOKE, Amport St. Mary, Andover, bay gelding, **Glantham Marvel**.

R.—F. C. MINOPRIO, Avening Court, Glos., brown filly, **Castlemae Gee Whizz**.

H.C.—H. W. WETTEN, Bathwick, Bath, bay mare, **Braishfield Eye**.

CLASS 51.—*Mare or Gelding, over 14 and not exceeding 15 hands, driven on the 4th day of the Show.* [4 entries.]

I. (£15.)—Mrs. W. HARDING, 101, Bath Road, Bristol, **Blightly**.

II. (£7.)—H. J. COLEBROOK, Fulmer, Bucks.

III. (£3.)—F. C. MINOPRIO, Avening Court, Glos., skewbald gelding, **Brynhir Beau**.

IV. (£2.)—Miss KATHLEEN MARY HASSARD, 41, Palace Road, S.W.2, dark chestnut mare, **Lady Maldstone** (25401).

CLASS 52.—*Mare or Gelding, over 15 hands, driven on the 5th day of the Show.* [4 entries.]

I. (£15) and Medal*—H. J. COLEBROOK, Fulmer, Bucks.

II. (£7.)—F. C. MINOPRIO, Avening Court, Avening, Glos., brown gelding, **Cestrian Leader**.

III. (£3.)—H. W. WETTEN, Bathwick, Bath, black gelding, **St. Mellons A.I.**

MEDAL—L.

* Given by the Hackney Horse Society under Condition No. 50. A Silver Medal for the best Mare or Gelding exhibited in Single Harness in Classes 45 to 52.

JUMPING.

CLASS 53.—*Mare or Gelding, over 15 hands, jumping over the course in the best form on the 1st day of the Show.* [24 entries.]

I. (£10.)—C. DORSE, Trull, Taunton, **Yutoi**.

II. (£5.)—B. W. MILLS, Little Berkhamsted, Herts, bay gelding, **Achehha**.

III. (£3.)—MISS S. PIERCE, Four Oaks, Warwickshire, black mare, **Girlie**.

Equal IV. (£1.)—FRANK C. MINOPRIO, Avening Court, Avening, Glos., bay gelding, **Toby**.

Equal IV. (£1.)—R. E. M. SUMMERVILLE, Henlade, Taunton, chestnut gelding, **Renown**.

CLASS 54.—*Mare or Gelding, 15 hands and under, jumping over the course in the best form on the 1st day of the Show.* [15 entries.]

I. (£10.)—T. GLENCROSS, Seagry, Chippenham, chestnut mare, **Cigarette**.

II. (£5.)—MISS M. A. BULLOWS, Edgbaston Riding School, Birmingham, chestnut gelding, **If Not**.

III. (£3.)—A MASSARELLA, Bentley, Doncaster, **Gay Boy**.

IV. (£2.)—T. E. WHITAKER, Southam Priory, near Cheltenham, **The Rat**.

CLASS 55.—*Mare or Gelding, over 15 hands, jumping over the course in the best form on the 2nd day of the Show.* [25 entries.]

I. (£10.)—B. W. MILLS, Little Berkhamsted, bay gelding, **Achehha**.

II. (£5.)—T. GLENCROSS, Seagry, Chippenham, chestnut gelding, **Knock Out**.

Equal III. (£2 10s.)—F. W. FOSTER, Etwall, Derby, **Charlie**.

Equal III. (£2 10s.)—MISS S. PIERCE, Four Oaks, Warwickshire, black mare, **Girlie**.

CLASS 56.—*Mare or Gelding, 15 hands and under, jumping over the course in the best form on the 2nd day of the Show.* [16 entries.]

I. (£10.)—F. W. FOSTER, Etwall, Derby, **Game Cock**.

II. (£5.)—MORGAN BROS., Henlade Farm, Taunton, grey mare, **Kathleen**.

Equal III. (£2 10s.)—MORGAN BROS., Henlade Farm, Taunton, bay mare, **Tin Tack**.

Equal III. (£2 10s.)—MISS S. PIERCE, Four Oaks, Warwickshire, chestnut mare, **Starlight**.

A CHALLENGE CUP

Value £50, to be won three times before becoming the absolute property of the winner, was given in Class 57 by a Member of the Society, and the money Prizes by the Bath Local Committee. Competition was confined to Officers of the Southern Command. A replica of the Cup was presented to the winner.

CLASS 57.—*Mare or Gelding, the property of the Government and allotted to a Unit stationed in the Southern Command, or the property of an Officer of the Southern Command; that should jump over the course in the best form on the 3rd day of the Show.* [4 entries.]

I. (Challenge Cup and £5.)—Major L. H. G. DORLING, M.C., R.A., Enford, near Marlborough, **Peterkin 2nd.**

II. (£5.)—Captain H. D. MACONOCHE, 3, Lansdown Place, Bath, chestnut gelding, **Playboy.**

III. (£3.)—Major A. D. MACPHERSON, West View, Bulford Camp, bay, **Samson.**

CLASS 58.—*Mare or Gelding, any height, jumping over the course in the best form on the 3rd day of the Show.* [39 entries.]

Equal I. (£6.)—J. TAYLOR, Stretton, Warrington, chestnut gelding, **Battle Axe.**

Equal I. (£6.)—Miss S. PIERCE, Four Oaks, Warwickshire, **Starlight.**

Equal I. (£6.)—T. GLENCROSS, Seagry, Chippenham, **Cigarette.**

IV. (£2.)—B. W. MILLS, Little Berkhamsted, bay gelding, **Achchha.**

CLASS 59.—*Mare or Gelding, any height, jumping highest on the 3rd day of the Show.* [13 entries.]

I. (£10.)—F. C. MINOPRIO, Avening Court, Glos., bay gelding, **Toby.**

II. (£5.)—Capt. A. LOWENSTEIN, Sutchville, **Look Out.**

III. (£2.)—E. G. DORSE, Trull, **Kathleen.**

CLASS 60.—*Mare or Gelding, over 15 hands, jumping over the course in the best form on the 4th day of the Show.* [23 entries.]

I. (£10.)—T. GLENCROSS, Seagry, Chippenham, **Knock Out.**

II. (£5.)—B. W. MILLS, Little Berkhamsted, **Achchha.**

III. (£3.)—Col. JOHNSON FERGUSON, Luckington, Chippenham, **Peter.**

IV. (£2.)—F. W. FOSTER, Etwall, Derby, **Charlie.**

CLASS 61.—*Mare or Gelding, 15 hands and under, jumping over the course in the best form on the 4th day of the Show.* [14 entries.]

Equal I. (£7 10s.)—Miss M. A. BULLOWS, Edgbaston, Birmingham, **If Not.**

Equal I. (£7 10s.)—T. GLENCROSS, Seagry, Chippenham, **Cigarette.**

Equal III. (£2 10s.)—J. TAYLOR, Stretton, Warrington, **Mary.**

Equal III. (£2 10s.)—R. THACKRAY, Calcot, **Don.**

CLASS 62.—*Mare or Gelding, any height, jumping highest on the 5th day of the Show.* [8 entries.]

I. (£10.)—D. W. DOBSON, Brindley, Nantwich, **Molecatcher.**

II. (£5.)—F. ALLISON, Penrith, **Nap.**

III. (£2.)—J. TAYLOR, Stretton, Warrington, **Mary.**

CHAMPION CLASS.

CLASS 63.—*Mare or Gelding, any height, having won a Prize in Classes 53 to 62, jumping over the course in the best form on the 5th day of the Show.* [15 entries.]

I. (£20) and Special†—J. TAYLOR, Stretton, Warrington, **Battle Axe**

II. (£10.)—Col. JOHNSON FERGUSON, Luckington, Chippenham, **Peter.**

Equal III. (£2 10s.)—J. TAYLOR, Stretton, Warrington, **Mary.**

Equal III. (£2 10s.)—Miss M. A. BULLOWS, Edgbaston, Birmingham, **If Not**

CATTLE.

DEVON.

CLASS 64.—*Devon Cow or Heifer, in-Milk, calved in or before 1924.* [3 entries.]

I. (£10.)—CECIL BRENT, Clampit Callington, Cornwall, **Clampit Gay Lass 20th** (34698), born 20th January, 1922; s Highfield Gem (8919), d Clampit Gay Lass 5th (27308). (Last calf 1st February, 1927).

SPECIAL PRIZE.

† Given by the British Show Jumping Association to Members of that Association who had paid their Subscriptions for the current year. A Silver Medal to the owner of the Horse making the least number of faults in Class 63, the Horse being a prize winner in the Class and not having previously won the Medal this year.

II. (£5.)—HAROLD HAMILTON BROADMEAD, J.P., Enmore Castle, near Bridgwater, Somerset, **Highfield Daisy 3rd** (37219), born 21st January, 1924, bred by the late Charles Morris, Highfield Hall, St. Albans, Herts; s Highfield Dumpling (10592), d Highfield Daisy 2nd (34209), s d Overton Favourite (9797). (Last calf 26th December, 1926).

III. (£2.)—G. C. ALEXANDER, Manor Farm, Winterbourne Stoke, Salisbury, **Stoke Actress** (34620), born 2nd December, 1922; s Avercombe Gentleman (10843), d Twin Actress 3rd (32951), s d Northmolton Courtier (9004). Last calf 4th January, 1927).

CLASS 65.—Devon Heifer, calved in 1925. [4 entries.]

I. (£10.)—CECIL BRENT, Clampit, Callington, Cornwall, **Clampit Gay Lass 25th**, born 1st March; s Highfield Gem (8919), d Clampit Gay Lass 5th (27308).

II. (£5.)—H.R.H. THE PRINCE OF WALES, K.G., Home Farm, Stoke Climsland, Cornwall, **Coombeshead Prettymaid** (37663), born 2nd March; s Norton Commander 2nd (12391), d Coombeshead Bride (32499), s d Highfield Gem (8919).

III. (£2.)—THOMAS JOHN PEARCEY, Peadhill, Tiverton, Devon, **Peadhill Caroline 6th**, born 18th February; s Pixford Dryad (10718), d Peadhill Caroline, s d Crazelowman True Type (9232).

R. and H.C.—ELAND CLATWORTHY, Cutsey, Trull, Taunton, **Cutsey Pansy**, born 21st January; s Crazelowman Topper (11418), d Westcott Pansy 2nd (31782), s d Woodlands Councillor (8333).

CLASS 66.—Devon Heifer, calved in 1926. [8 entries.]

I. (£10.)—CECIL BRENT, Clampit Callington, Cornwall, **Clampit Gay Lass 27th**, born 26th January; s Pound Romper (12413), d Clampit Gay Lass 20th (34698), s d Highfield Gem (8919).

II. (£5.)—H.R.H. THE PRINCE OF WALES, K.G., Home Farm, Stoke Climsland, Cornwall, **Coombeshead Gay Girl**, born 26th March; s Highfield Gem (8919), d Cothelstone Gay Girl (31017), s d Holbombe Admiral (7411).

III. (£2.)—ELAND CLATWORTHY, Cutsey Trull, Taunton, **Cutsey Stella** (39141), born 11th March; s Thatcher (11233), d Westaway Sarah 2nd (35480), s d Water Hero (9501).

R.—HAROLD HAMILTON BROADMEAD, J.P., Enmore Castle, near Bridgwater, Somerset, **Sunbeam** (38928), born 17th January, bred by the late Charles Morris Highfield Hall, St. Albans, Herts; s Clampit Dreadnought (11797), d Highfield Sunbeam (30362), s d Highfield General (8105).

H.C.—Capt. M. L. BULLER, M.C., Downes, Crediton, **Downes Duchess** (38971), born 2nd March; s Molton Georgie (11957), d Downes Rose (30779), s d Destroyer (8835).

C.—G. C. ALEXANDER, Manor Farm, Winterbourne Stoke, Salisbury, **Stoke Lily**, born 13th April; s Cutsey Rubber (10977), d Pickwell Lily 2nd (27126), s d Holcombe Ruler (7150).

CLASS 67.—*Devon Bull, calved in or before 1924.* [3 entries.]

I. (£10) and Champions *†(£10)—**CÉCIL BRENT**, Clampit, Callington, Cornwall, **Pound Romper** (12413, born 28th January, 1923, bred by G. C. Skinner, Pound, Bishop Lydiard; s Pound Larker, d Pound Rosebud 24th.

II. (£5.)—**FRED W. VERNEY**, Avercombe, Bishopsnympton, N. Devon, **Avercombe What's Wanted** (12124), born 17th February, 1923; s Overton Masterpiece (11152), d Avercombe Countess 2nd (31518).

III. (£2.)—**ABRAHAM TRIBLE & SONS**, Halsdon Barton, Holsworthy, **Overton Goldcoin 2nd** (10236), born 6th May, 1918, bred by the late W. Huxtable, Overton, Barnstaple; s Capton Buttermen (9816), d Overton Myrtle 2nd (25912).

CLASS 68.—*Devon Bull, calved in 1925.* [1 entry.]

I. (£10) and R for Champions *†—**HAROLD HAMILTON BROADMEAD**, J.P., Enmore Castle, near Bridgwater, Somerset, **Netherexe Curly Boy** (13259), born 29th January, bred by Alford Brothers Netherexe Barton, Stoke Cannon, Devon; s Nerrols Airman (11968), d Pickwell Curly Coat (36521), s d Pickwell Jacob 3rd (10250).

CLASS 69.—*Devon Bull, calved in 1926.* [5 entries.]

I. (£10.)—**G. C. ALEXANDER**, Manor Farm, Winterbourne Stoke, Salisbury, **Stoke Glory**, born 19th April; s Cutsey Rubber (10977), d Warrens Park Glory 2nd (32570), s d Highfield Gem (8919).

II. (£5.)—**R. GYNN & SON**, Tresley, Camelford, Cornwall, **Netherexe Good Sort** (Vol. 50), born 29th March, bred by Alford Bros., Exeter; s Sandford Exiseman (12028), d Mayblossom (35586), s d Netherexe Pirate (11597).

III. (£2.)—**G. C. ALEXANDER**, Manor Farm, Winterbourne Stoke, Salisbury, **Stoke Dignity**, born 14th February; s Upcott Dignity, d Stoke Broadface (35575), s d Pound Dumping (11180).

R.—**Capt. M. L. BULLER**, M.C., Downes, Crediton, **Stitchpool Gentleman** (Vol. 50), born 20th January, bred by T. W. Burnell, Stitchpool, North Molton, Devon; s Pound Smiler (12002), d Graceful 11th (28117), s d Stockleigh Nominator (8270).

H.C.—**Major R. C. COLDWELL**, Spring Grove, Milverton, Som., **Spring Grove Barman**, born 7th June; s Holcombe Mainstay (11533), d Cothelstone Beetroot (33978), s d All But (9935).

* Given by H.R.H. The Prince of Wales, K.G., a Challenge Cup, value £30, for the best Bull exhibited in the Devon Classes, to be won three times in succession or four times altogether before becoming the property of the winner.

† Given by the Devon Cattle Breeders' Society, for the Best Animal exhibited in the Devon Classes.

SOUTH DEVON.

(£10 towards the Prizes in the South Devon Classes were given by the South Devon Herd Book Society.)

CLASS 70.—*South Devon Cow or Heifer, in-Milk, calved in or before 1924. [2 entries.]*

I. (£10.)—RICHARD WILLIAM CHAFFE, Worswell Barton, Revelstoke, S. Devon, **Worswell Gladys 12th**, born 10th July, 1920 ; s Widland Champion (6784), d Worswell Gladys 4th, s d Merrafield Royal Star. (Last calf 2nd January, 1927).

II. (£5.)—LORD MILDMAY OF FLETE, Ermington, Devon, **Flete Pink 3rd** (30307), born 10th January, 1924 ; s Trehele Forester (9500), d Flete Pink (23515), s d Random (7315). (Last calf 1st January, 1927).

CLASS 71.—*South Devon Heifer, calved in 1925 or 1926. [2 entries.]*

I. (£10.)—LORD MILDMAY OF FLETE, Ermington, Devon, **Flete Lovely** (31525), born 4th January, 1925 ; s Tunnell Boy (10021), d Flete Lilly 2nd 27261, s d Trehele Forester (9500).

II. (£5.)—Ditto, ditto, **Flete Lilly 3rd** (31524), born 29th July, 1925 ; s Mount Barton Prince (10375), d Lilly 9th (18525), s d Lilian's Champion (6016).

CLASS 72.—*South Devon Bull, calved in or before 1925. [4 entries.]*

I. (£10.)—S. EVERY & SON, Tinnell, Landulph, Hatt, Cornwall, **Lixton Councillor 5th** (8590), born 24th January, 1919, bred by S. Horton, Lixton, Loddiswell ; s Councillor 12th (4828), d Molly 24th (12764), s d Norman (3510).

II. (£5.)—LORD MILDMAY OF FLETE, Ermington, Devon, **Widland No. 1** (10077), born 7th August, 1921, bred by D. Camp & Sons, Widland, Modbury, Devon ; s Charleton No. 3 (8386), d Widland Careful 2nd (16446), s d Widland Perfection (5217).

CLASS 73.—*South Devon Bull, calved in 1926. [3 entries.]*

I. (£10.)—RICHARD WILLIAM CHAFFE, Worsell Barton, Revelstoke, S. Devon, **Widland Captain**, born 10th January, bred by David Camp & Sons, Widland Modbury, S. Devon ; s Trehele Forester (9500), d Widland Careful 10th (28178).

II. (£5.)—W. L. HOSKING & SONS, Fentongollan, Probus, Cornwall, **Fentongollan Orangeman**, born 22nd January ; s Tregye Orangeman (11279), d Fentongollan Butterfly (26993), s d Fentongollan Apollo (8466).

III. (£2.)—LORD MILDMAY OF FLETE, Ermington, Devon, **Flete King**, born 18th July ; s Gerston King (10700), d Buttercup (20110), s d Lilian's Champion (6016).

SHORTHORN.

CLASS 74.—*Shorthorn Cow or Heifer, in-Milk, calved in or before 1924. [5 entries.]*

I. (£10.)—HON. MRS. BRUCE WARD, Godinton, Ashford, Kent, roan, **Godinton Groat 9th** (68881), born 2nd March, 1924; s Godinton Golden Autumn (171953) d Dewlap 14th (Vol. 66, p. 1095), s d Bilsington Vanguard (129670). (Last calf 27th January, 1927).

II. (£5.)—L. V. GARLAND, Greenbank, The Towans, Hayle, Cornwall, roan, **Towan Queen**, born 24th November, 1921; s Butterfly Leader (154520), d Beauty Sleep, s d Golden Cloud 2nd (108751).

III. (£2.)—H. R. H. THE PRINCE OF WALES, K.G., Home Farm, Stoke Climsland, Cornwall, red, **Whiteford Princess**, born 10th February, 1922, bred by Richard Smith, Whiteford, Stoke Climsland; s Bapton Bondsman (153739), d Christmas Rose, s d Broadhooks Ideal (119220). (Last calf, November, 1926).

H.C.—COL. SIR FRANK B. BEAUCHAMP, Bart., Woodborough House, near Bath, white, **Rickford Butterfly 3rd**, born 4th March, 1922, bred by Sir G. A. Wills, Bart, Coombe Lodge, Blagdon, Bristol; s Collynie Royal Regent (148043), d Rickford Butterfly, s d Golden Guardsman (125756). (Last calf 25th September, 1926.)

CLASS 75.—*Shorthorn Heifer, calved in 1925. [11 entries.]*

I. (£10.)—H. M. THE KING, The Royal Farms, Windsor, white, **Windsor Floss**, born 17th April; s Harviestoun Golden Rule (181456), d Winkfield Floss 4th (49251), s d Bright Star (154348).

II. (£5.)—D. P. BARNETT, Durygraig, Newton, Porthcawl, Glam., white, **Viola**, born 2nd April; s Tarrel Royal, d Violet Broadkooks 2nd (Vol. 70., p. 1185), s d Premier Colonel (166012).

III. (£2.)—H. M. THE KING, The Royal Farms, Windsor, light roan, **Windsor Hawthorn**, born 26th May; s Cudham Prince Augustus (170765), d Windsor Marie (32517), s d Edgecote Flatterer (125374).

R.—SIR CECIL CHUBB, Bart., Bapton Manor, Codford, Wilts, red, **Princess Alice** (71907), born 4th February; s Cluny Prince Regent (179639), d Princess Agnes (Vol. 65, p. 1202), s d Boquhan Stamp (114408).

H.C.—HON. MRS. BRUCE WARD, Godinton, Ashford, Kent, roan, **Godinton Augusta 4th** (80896), born 31st May; s Balcuirn Eagle (168680), d Kinellar Augusta 5th (46663), s d Clarion (154798).

C.—SIR CECIL CHUBB, Bart, Bapton Manor, Codford, Wilts, white, **Bapton Augusta** (71904), born 1st March; s Bapton Blizzard (178201), d Augusta Topsy (Vol. 63, p. 998), s d Dunglass Chief (120004).

CLASS 76.—*Shorthorn Heifer, calved in 1926. [15 entries.]*

I. (£10.)—SIR CECIL CHUBB, Bart., Bapton Manor, Codford, Wilts, roan, **Bapton Kilblean Beauty** (Vol. 73), born April 11th; s Godinton Grand Duke (163580), d Mistletoe (32018), s d Billington Snowstorm (154027).

II. (£5.)—Sir GEO. ALFRED WILLS, Bart., Langford Court Farm, Langford, near Bristol, white, **Rickford Butterfly 7th**, born 5th May; s Collynie Royal Regent (148043), d Rickford Butterfly, s d Golden Guardsman (125756).

III. (£2.)—Sir CECIL CHUBB, Bart., Bapton Manor, Codford, Wilts, roan, **Bapton Princess Royal** (Vol. 73), born 7th February; s Cluny Prince Regent (179639), d Princess Agnes (Vol. 65, p. 1202), s d Boquhan Stamp (114408).

R.—C. E. GUNTHER, Tongswood, Hawkhurst, Kent, red, **Cudham Butterfly 21st**, born 16th February, bred by A. W. Maconochie, Green Street, Cudham; s Cudham Golden Link, d Cudham Butterfly 9th, s d Cudham Norseman.

H.C.—Major J. A. MORRISON, D.S.O., Basildon Park, Goring-on-Thames, Reading, white, **Basildon Lady Ramsden 2nd**, born 26th February; s Dudham Moonlight (162593), d Alice Ramsden (Vol. 65, p. 835), s d Mill Hill's, Rothe's King (138020).

C.—C. E. GUNTHER, Tongswood, Hawkhurst, Kent, red roan, **Tongswood Lavender 11th**, born 1st February; s Cluny Golden Charms, d Tongswood Lavender 3rd, s d Tongswood Bassoon.

C.—Hon. Mrs. BRUCE WARD, Godinton, Ashford, Kent, roan, **Godinton Orphan 9th** (Vol. 73), born 22nd February; s Champions First (154715), d Bilsington Orphan 8th (Vol. 65, p. 587), s d Dewlaps Royal Sovereign (125170).

CLASS 77.—*Shorthorn Bull, calved in 1923 or 1924.* [6 entries.]

I. £10.—Sir RICHARD COOPER, Bart., Billington, Leighton Buzzard, roan, **Millhill's Clipper King** (192163), born 8th March, 1923, bred by Duncan M. Stewart, Millhill's, Crief, N.B.; s Cupbearer of Collynie (114960), d Fair Clipper, s d Collynie Cruickshank (105068).

II. (£5.)—Col. Sir FRANK B. BEAUCHAMP, Bart., Woodborough House, near Bath, red roan, **Bapton Chevalier** (187575), born 2nd January, 1923, bred by J. Deane Willis, Bapton Manor, Codford, Wilts, s Diamond Pierre (162773), d Celandine, s d Edgecote Courtier (130818).

III. (£2.)—C. E. GUNTHER, Tongswood, Hawkhurst, Kent, red roan, **Cluny Golden Charm**, born 7th March, 1924, bred by Lady Cathcart, Cluny Castle, Aberdeenshire; s Cluny Regal Stars, d Cudham Broadhooks 4th, s d Golden Charms.

CLASS 78.—*Shorthorn Bull, calved in 1925.* [5 entries.]

I. (£10) and Champion (£10)*—Sir RICHARD COOPER, Bart., Billington, Leighton Buzzard, roan, **Billington Augustus 6th** (205116), born 21st August; s Collynie King Lavender (148038), d Shenstone Augusta (1754), s d Macebearer (126693).

II. (£5.)—Major J. A. MORRISON, D.S.O., Basildon Park, Goring-on-Thames, Reading, dark roan, **Basildon Fascinator**, born 14th February; s Cudham Moonlight (162593), d Basildon Clipper (6007), s d Count Benedict (124951).

III. (£2.)—HUGH BAKER, Chedglow, Malmesbury, roan, **Master of the Mint** (209535), born 23rd February; s Lutwyche Mint (173747), d Rose of Chedglow 55th (338), s d Christian Augustus (135715).

* Given by the Shorthorn Society, for the best Bull in the Shorthorn Classes, entered in, or eligible for entry in Coates's Herd Book, with Silver Medal to the Breeder.

R.—Hon. Mrs. BRUCE WARD, Godinton, Ashford, Kent, white, **Godinton Midas** (207674), born 7th February; s Balcairn Eagle (168680), d Bilsington Alexandrina (Vol. 60, p. 612), s d Daylight (108349).

H.C.—Col. Sir FRANK B. BEAUCHAMP, Bart., Woodborough House, near Bath, red, **Gainford Nonpareil Wonder** (207491), born 20th May, bred by George Harrison, Gainford Hall, Gainford, Darlington; s Gainford Rapture (189911), d Nonpareil Violet 3rd, s d Balnakyle Minstrel (129378).

CLASS 79.—*Shorthorn Bull, calved in 1926.* [10 entries.]

I. (£10.)—Sir GEO. ALFRED WILLS, Bart., Langford Court Farm, Langford, near Bristol, red roan, **Rickford Emperor**, born 26th January; s Collynie Royal Regent (148043), d Eliza Lotus, s d Marquis of Millhills (137868).

II. (£5.)—NORMAN N. LEE, Stonelands, Arncliffe, Skipton in Craven, red, **Collynie Red Eagle** (Next Vol.), born 3rd May, bred by Duthie Webster, Tarves, Aberdeenshire; s Calrossie Augusta Monarch (179178), d Windmill Lady Mabel, s d Lord Mayor (132036).

III. (£2.)—Hon. Mrs. BRUCE WARD, Godinton, Ashford, Kent, roan, **Godinton Lord Broadhooks** (Vol. 73), born 12th March; s Champions First (154715), d Culloden Rose Broadhooks 2nd (29678), s d Balcairn Duke (153574).

R.—Ditto, ditto, white, **Godinton Proud Orange Pip** (Vol. 73), born 3rd March; s Godinton Proud Earl (190055), d Vahan Orange Blossom 5th (12470), s d Adbolton King Tulip (129026).

H.C.—L. V. GARLAND, Greenbank, The Towns, Hayle, Cornwall, roan, **Climsland Clipper King**, born 19th January, bred by H.R.H. The Duke of Cornwall, Marsh Farm, Landulph, Hatt, E. Cornwall; s Climsland Regal King 2nd (197380), d Dalecapar Clipper (Vol. 69, p. 764), s d Queen's Guard (166179).

C.—Sir CECIL CHUBB, Bart., Bapton Manor, Codford, Wilts, white, **Bapton Clipper King** (Vol. 73), born 23rd April; s Godinton Grand Duke (163580), d Casket (31999), s d Billington Snowstorm. (154027).

DAIRY SHORTHORN.

(The First Prizes in Classes 80 and 81 (and a Silver Medal to the Breeder of the winners) were given by the Shorthorn Society and the First Prize in Class 86 by the Dairy Shorthorn Association).

CLASS 80.—*Dairy Shorthorn Pedigree Cow, in-Milk, calved in or before 1923, eligible for, and entered in Coates's Herd Book, or pedigree sent for such entry previous to the Show, and not having previously won a similar prize offered by the above-named Society in 1927, milked in the Ring before judging, under conditions 59.*
[15 entries.]

I. (£10.)—Sir WILLIAM HICKING, Bart., Brackenhurst Hall, Southwell, white, **Brackenhurst Jean**, born 21st June, 1923; s Royal Ringleader (166746), d Grendon Jeanie (Vol. 66, p. 532), s d Lord Nottingham (116317).

II. (£5.)—LAWRENCE HIGNETT, Hook End Farm, Checkendon, near Reading, roan, **Sybil 34th**, born 18th February, 1919, bred by R. W. Hobbs & Sons, Kelmscott, Lechlade; s Kelmscott Conjuror 4th (137270), d Sybil 20th, s d Cranford Freemason (114883).

III. (£2.)—Major R. F. FULLER, Great Chalfield, Melksham, roan, **Chalfield Daffodil 7th** (36524), born 18th April, 1922; s Wild Gift (146378), d Chalfield Daffodil 6th (Vol. 65, p. 781), s d Romping Boy (133199).

R.—ROBERT N. TORY, Anderson, Blandford, roan, **Fulmer Melody** (25409) (Vol. 68, p. 885), born 22nd March, 1921, bred by Major T. W. Hay, Fulmer Court, Bucks; s Leam Commissioner (149958), d Presalute Melody, s d Knowsley Precentor (126368).

H.C.—HERBERT J. WATSON, Hermongers, Rudgwick, Sussex, roan, **Hermongers Proud Belle**, born 31st August, 1922; s Kelmscott Comedian 11th (164367), d Dainty Beauty (8646), s d Furbelow King (136617). (Last calf 12th June, 1926).

CLASS 81.—*Pedigree Dairy Shorthorn Cow, in-Milk, calved in or after 1924, eligible for, and entered in Coates's Herd Book, or pedigree sent for such previous to the Show, and not having previously won a similar prize offered by the above-named Society in 1927, milked in the Ring before judging, under Conditions 59. [5 entries.]*

I. (£10.)—W. C. SPENCER AND SON, Linton Farm, Gloucester, roan, born 28th January, 1925; s Grendon Druid (181316), d Bankhead Rose, s d Militaire (121593). (Last calf 22nd March, 1927).

II. (£5.)—HENRY LEAR, Doynton, Bristol, roan, **Rayton Barmpton Rose** born 29th March, 1924, bred by E. W. Bunn, Drayton, Norwich; s Locking Dairyman (137600), d Barmpton Rose 6th, s d Burleigh Starlight (124577). (Last calf 3rd February, 1927).

III. (£2.)—J. PIERPONT MORGAN, Estate Office, Wall Hall, Watford, red and white, **Aldenhams Ringlet 2nd** (65294), born 14th January, 1924; s Cantab Jocelyns Armistice (147744), d Apley Ringlet (6591), s d Dairyman (130512). (Last calf 5th February, 1927).

R.—Major ROBERT FLEETWOOD FULLER, Great Chalfield, Melksham, white, **Chalfield Promise 4th** (61506), born 5th June, 1924; s Combebank Adam (170486), d Promise Fillpail 3rd, s d Leazow Zenlot (149969). (Last calf 24th April, 1927).

(Given by the Bath Local Committee, and open only to Residents within a radius of 30 miles of the Guildhall, Bath).

CLASS 82.—*Dairy Shorthorn Cow, calved previous to 1924, in-Milk, and having produced a live calf. [7 entries.]*

I. (£10.)—W. R. WITHERS, Lower Court, Long Ashton, Bristol, roan, **Queen Bess**, born 12th April, 1923, bred by Hon. P. Methuen, Beanaere Manor Farm, Melksham; s Tockenham Keystone 15th (159979), d Lizzie 13th, s d Hawker Lord (136996). (Last calf 28th April, 1927).

II. (£5.)—Major R. F. FULLER, Great Chalfield, Melksham, roan, **Chalfield Daffodil 7th** (36524), born 18th April, 1922; s Wild Gift (146378), d Chalfield Daffodil 6th (Vol. 65, p. 781), s d Romping Boy (133199).

III. (£2.)—WILLIAM BUTLER, Gatcombe Farm, Flax Bourton, Som., roan, **Gatcombe Queen Mary 2nd** (21812), born 24th March, 1921; s Thurnham Linksman (152577), d Orsett Queen Mary, s d Billing Ambassador (111050). (Last calf 12th February, 1927).

CLASS 83.—*Pedigree Dairy Shorthorn Heifer, calved in 1925.* [5 entries.]

I. (£10.)—W. C. SPENCER AND SON, Linton Farm, Gloucester, roan, born 28th January, 1925; s Grendon Druid (181316), d Bankhead Rose, s d Militaire (121593). (Last calf 22nd March, 1927).

II. (£5.)—PERCY H. FRANCIS, Summerleaze, East Knoyle, roan, **Knoyle Honeysuckle**, born 24th October; s Tockenham Goodfellow 58th (194706), d Grizzel, s d M.C. 21st (112494).

III. (£2.)—HERBERT J. WATSON, Hermongers, Rudgwick, Sussex, roan, **Hermongers Dorothy**, born 1st June; s Hermongers Count (190488), d Oakley Dainty 2nd (21911), s d Duke of Oxford 3rd (148547).

R.—F. W. MORLEY, Biddestone Manor, Chippenham, roan, **Biddestone Telluria Clytic**, born 3rd January; s Tockenham Keystone 10th (152613), d Telluria Clara, s d Heggles Ensign (131444).

CLASS 84.—*Pedigree Dairy Shorthorn Heifer, calved in 1926.* [10 entries.]

I. (£10.)—HERBERT J. WATSON, Hermongers, Rudgwick, Sussex, roan, **Hermongers Proud Belle 3rd**, born 26th April; s Babraham Prince (186840), d Dainty Beauty (8646), s d Furbelow King (136617).

II. (£5.)—Ditto, ditto, roan, **Hermongers Luxury**, born 19th May; s Babraham Prince (186840), d Water Lily (Vol. 65), s d Furbelow King (136617).

III. (£2.)—SIR WILLIAM HICKING, Bart., Brackenhurst Hall, Southwell, red, **Ashe Kirklevington 2nd**, born 10th March, bred by T. L. Martin, Ashe Warren, Basingstoke; s Histon Wild Prince 3rd, d Kirklevington 53rd, s d Lord Mandeville.

R.—J. PIERPONT MORGAN, Estate Office, Wall Hall, Watford, red and little white, **Aldenham Florentia 2nd**, born 27th March; s Aldenham Lord Barrington (177679), d Preshute Florentia (Vol. 62, p. 950), s d Cherry Duke (119430).

H.C.—H. S. HORNE, Aldsworth, Emsworth, Hants, roan, **Campsfield Sweet Briar**, born 26th March, bred by Mr. Twentymen, Campsfield, Woodstock; s Campsfield Squire, d Sweet Briar, s d Lock, Somerset.

C.—F. W. MORLEY, Biddestone Manor, Chippenham, roan, **Biddestone Clare**, born 5th July; s Tockenham Keystone 10th (152613), d Bonny Clara (Vol. 61, p. 669), s d Pansy's Pride (112745).

CLASS 85.—*Pedigree Dairy Shorthorn Bull, calved before 1926.* [10 entries.]

I. (£10.)—LAWRENCE HIGNETT, Hook End Farm, Checkendon, near Reading, roan, **Kelmscott Imperialist 71st** (182006), born 13th May, 1922, bred by Messrs. R. W. Hobbs and Sons, Kelmscott, Lechlade; s Creme de Menthe (119683), d Primula 121st, s d Royal Hampton (96908).

II. (£5.)—ROBERT N. TORY, Anderson, Blandford, roan, **Anderson Champion Bates** (186667), born 30th October, 1923; s Kelmscott Conjuror 3rd (137269) d Damroy Kirklevington 5th, s d Prince of Pearls (103408, Vol. 56, p. 1190).

III. (£2).—Ditto, ditto, roan, **Anderson Lord Conjuror** (195657), born 2nd September, 1924; s Conjuror 2nd (179738), d Anderson Lady 2nd, s d Count Waldron 2nd (114862, Vol. 61, p. 1077).

R.—Major G. MILLER MUNDY, Red Rice, Andover, Hants, dark roan, **Longhills Lord Price** (200551), born 5th November, 1924, bred by E. A. Smith, Longhills, Lincoln; s Babraham Lord Price (140574), d Lady 32nd, s d Clipper Duke (105045).

H.C.—A. H. W. OSBORNE AND SONS, Branch Farm, Mells, Frome, Somerset, red and little white, **Campfield Squire 2nd** (197042), born 1st October, 1924, bred by Mr. Geo. Twentyman, Campfield Woodstock, Oxon, s Duke of Rosedale 7th (171196), d Nellie Winsonia 2nd, s d Walby Star (128699).

C.—HENRY LEAR, Bottoms Farm, Doynton, Bristol, roan, **Melchet Major 2nd** (200922), born 24th March, 1924, bred by Sir A. Mond, Bart., Melchet Court, Romsey, Hants; s Melchet Pluto 2nd (183065), d Furbelow Princess, s d Major Firth (121367).

CLASS 86.—*Pedigree Dairy Shorthorn Bull, calved in 1926, entered or pedigree accepted for entry in Coates's Herd Book and registered or accepted for registration in the Year Book of the Dairy Shorthorn Association. (An animal having taken one of these prizes was not eligible to compete again in the same year except at the R. A.S.E. Show). [14 entries.]*

I. (£10) and Special (£10)*—W. C. SPENCER & SON, Linton Farm, Gloucester, roan, **Bushlea Prince 7th**, born 6th September; s Histon Baron 3rd (172472), d Bushlea Princess, s d Kelmscott Conjuror 10th (143177).

II. (£5.)—WILLIAM BUTLER, Gatecombe Farm, Flax Bourton, Somerset, dark roan, **Gatecombe Minstrel 6th**, born 6th March; s Tockenham Minstrel 12th (176831), d Gatecombe Queen Mary 2nd (21812), s d Thurnham Linksman (152577).

III. (£2.)—HERBERT J. WATSON, Hermongers, Rudgwick, Sussex, roan, **Hermongers Dauntless**, born 10th January; s Babraham Prince (186840), d Hermongers Decentia 2nd (43933), s d Cotland's Lord Kirklevington (148159).

R.—HERBERT J. WATSON, Hermongers, Rudgwick, Sussex, red and very little white, **Hermongers Prince**, born 3rd January; s Babraham Prince (186840), d Hermongers Countess 2nd (43931), s d Hermongers Premier (163979).

H.C.—Mr. HENRY W. PARISH and Miss WINIFRED W. PARISH, Bathealton Court, Taunton, white, **Bathealton Musician**, born 12th April; s Doynton Ragged Boy 2nd (189206), d Sweet Melody 2nd (Vol. 70, p. 1092), s d Chalfield Wild Gwynne 2nd (170123).

C and R for Special*—Major ROBERT FLEETWOOD FULLER, Great Chalfield, Melksham, white, **Chalfield Snowdrops Don 3rd** (Vol. 73), born 13th June; s Preshute Waterloo Don (174965), d Chalfield Snowdrop 3rd (13028, s d Wild Gilt (146378).

*Given by the Dairy Shorthorn Association, for the best Bull in Class 86 qualified in accordance with Conditions No. 60.

HEREFORD.

CLASS 87.—*Hereford Cow or Heifer, in-Milk, calved before September 1, 1924.* [2 entries.]

I. (£10) and R for Champion*—Sir DAVID RICHARD LLEWELLYN, Bart., The Court, St. Fagans, Glam., **Crossways Opal**, born 6th January, 1919, bred by Owen Williams, Crossways, Cowbridge; s Ringer (31920), d Sheepecote Opal, s d Milton (25571). (Last calf 7th December, 1926).

II. (£5.) W. G. BUCHANAN, Manor House Farm, Abergavenny, **Carmelia**, born 13th January, 1922, bred by R. H. Marfell & Sons, Great House, Llangeview, Usk; s Wharton Twin (38346), d Carol (Vol. 50, p. 696), s d Carlos (28980). Last calf 12th January, 1927.)

CLASS 88.—*Hereford Heifer, calved on or between September 1, 1924 and August 31, 1925* [3 entries.]

I. (£10) and Champion (£10)*—Sir DAVID RICHARD LLEWELLYN, Bart., The Court, St. Fagans, Glam., **Priory Cornelia 2nd**, born 30th October, 1924, bred by L. Blakstad, The Priory, Clifford; s Priory Orangeman (42773), d Cornelia, s d Leen Vistula (31664).

II. (£5.)—DAVID PERCIVAL BARNETT, Walterston, Llancarfan, Cardiff, **Lady Boadicea 2nd**, born 6th January, 1925; s Apsam (40433), d Lady Boadicea (Vol. 50, p. 869), s d Sir Sam.

III. (£2.)—PERCY E. BRADSTOCK, Free Town, Tarrington, Herefordshire, **Free Town White Heather**, born 14th January, 1925; s Free Town Reformer (43719), d Heather (Vol. 50, p. 383), s d Time Test (26529).

CLASS 89.—*Hereford Heifer, calved on or after September 1, 1925.* [5 entries.]

I. (£10.)—DAVID PERCIVAL BARNETT, Walterston, Llancarfan, Cardiff, **Ladylute**, born 20th January; s Resolute (35537), d Lady Boadicea (Vol. 50, p. 869), s d Sir Sam (33131).

II. (£5.)—Sir DAVID R. LLEWELLYN, Bart., The Court, St. Fagans, Glam., **St. Fagans Phyllis**, born 3rd February, 1926; s Weston Parable (44337), d Malpas Phyllis, s d Forest King (32517).

III. (£2.)—Capt. R. T. HINCKES, Mansel Court, Hereford, **Mansel Lulu**, born 25th October, 1925; s Mansel Mayman (43935), d Leen Lulu (541567), s d Free Town Warrior.

CLASS 90.—*Hereford Bull, calved before September 1, 1924.* [2 entries.]

I. (£10) and Champion (£10)†—Hon. Mrs. DEVERAUX, Hampton Court Leominster, Herefordshire, **Freetown Vincent** (44880), born 11th February, 1924, bred by P. E. Bradstock, Freetown, Tarrington, Hereford; s Aldersend Napier (35844), d Vanity (Vol. 55), s d Koh-i-Nor (37124).

*Given by the Hereford Herd Book Society, for the best registered Cow or Heifer in the Hereford Classes.

†Given by the Hereford Herd Book Society, for the best registered Bull in the Hereford Classes.

II. (£5.)—CAPT. R. T. HINCKES, Mansel Court, Hereford, **Mansel Oysterman** (46182), born 4th June, 1923; s Union Jack (31136), d Mansel Oyster Girl 6th (Vol. 54, p. 353), s d Mansel Jason (37364).

CLASS 91.—*Hereford Bull, calved on or between September 1, 1924, and August 31, 1925.* [4 entries.]

I. (£10.)—DAVID PERCIVAL BARNETT, Walterston, Llancarfan, Cardiff, **Winston 2nd**, born 2nd March, 1925; s Walterston Sam (38309), d Shelsley Lucy (Vol. 46, p. 572), s d Eaton Sovereign.

II. (£5.)—SIR DAVID RICHARD LLEWELLYN, Bart., The Court, St. Fagans, Glam., **St. Fagans Paxolute**, born 1st April, 1925; s Resolute (35537), d Peace, s d Subaltern (35654).

III. (£2.)—PERCY E. BRADSTOCK, Free Town, Tarrington, Herefordshire, **Vern Concord** (46592), born 9th January, 1925, bred by R. S. de Quincey, The Vern, Bodenham, Herefordshire; s Emblem (40894), d Onyx (Vol. 52, p. 607), s d One Royal (32871).

C.—Major N. S. WILSON, Norton Manor, Malmesbury, **Vern Critic** (46597), born 17th January, 1925, bred by Capt. R. S. de Quincey, The Vern, Bodenham s Bodenham Escort (43343), d Jess 2nd (Vol. 53, p. 475), s d Bodenham Goodwill (36042).

CLASS 92.—*Hereford Bull, calved on or after September 1, 1925.*
[6 entries.]

I. (£10) and Reserve for Champion†—W. G. BUCHANAN, Manor House Farm, Abergavenny, **Gobion Resolute 2nd**, born 12th September, 1925; s Gobion Resolute (46010), d Gobion Freedom 3rd, s d Pyon's Volunteer (38960).

II. (£5.)—DAVID PERCIVAL BARNETT, Walterston, Llancarfan, Cardiff, **Samulte**, born 15th December, 1925; s Resolute (35537), d Hilston Rosary (Vol. 50), s d Sir Sam (33131).

III. (£2.)—HENRY MOORE, Junr., Shucknall Court, Hereford, **Shucknall Ensign** (47590), born 11th January, 1926; s Dinkum of Pitsford (43602), d Shucknall Violet (Vol. 52, p. 442), s d Aldersend Monarch (38469).

H.C.—PERCY E. BRADSTOCK, Free Town, Tarrington, Herefordshire, **Free Town Senator**, born 15th December, 1925; s Genial (43741), d Heather (Vol. 50, p. 383, s d Time Test).

C.—Hon. MRS. DEVERAUX, Hampton Court, Leominster, Herefordshire, **Hampton Court Grenville**, born 19th March, 1926; s Pyons Valuer (42791), d Glory 2nd, s d Bandsman (33327).

C.—Major N. S. WILSON, Norton Manor, Malmesbury, **Plover's Egg**, born 25th January, 1926; s Tarrington Duke (44270), d Norton Plover (Vol. 54, p. 657), s d Clive Enterprise 2nd (36372).

†Given by the Hereford Herd Book Society* for the best registered Bull in the Hereford Classes.

SUSSEX.

(£10 towards the Prizes in the Sussex Classes and the Silver Medals were given by the Sussex Herd Book Society).

CLASS 93.—*Sussex Cow or Heifer, in-Milk, calved in or before 1924.* [2 entries.]

I. (£10) and Medal*—ELLICE EZRA, Lock, Partridge Green, Sussex, **Lock Daisy**, born 12th February, 1924; s Jacobite, d Drungewick Daisy 16th, s d Drungewick A.I. 7th. (Last calf 8th January, 1927).

II. (£5.)—Lord LECONFIELD, Petworth House, Petworth, Sussex, red, **Petworth Knott 4th**, (19491), born 27th January, 1920; s Newick Nobleman 3rd (4227), d Northiam Knott (13515), s d Prebble Confidence (2148). (Last calf 17th March, 1927).

CLASS 94.—*Sussex Heifer, calved in 1925.* [3 entries.]

I. (£10) and Reserve for Medal*—LIEBIG'S EXTRACT OF MEAT CO., LTD., Crithall Farm, Benenden, Kent, **Crithall Belle 2nd**, born 3rd February; s Tilsden Rufus 3rd, d Rankine Belle, s d Birling Boy.

II. (£5.)—L. O. JOHNSON, "Peppers," Ashurst, Steyning, Sussex, **Kings Barn Darkey 6th** (22772), born 17th February; s North Chapel Commander (5853), d Lock Darkey 13th (15990), s d Tutsham Beau (3212).

III. (£2.)—ELLICE EZRA, Lock, Partridge Green, Sussex, **Lock Beauty 8th**, born 7th February; s Jacobite, d Lock Beauty 7th, s d Drungewick A.I. 15th.

CLASS 95.—*Sussex Heifer, calved in 1926.* [5 entries.]

I. (£10.)—ELLICE EZRA, Lock, Partridge Green, Sussex, **Lock Briar 3rd**, born 31st January; s Bolebroke Harlequin 3rd, d Lock Briar, s d Ewhurst Miller Prince.

II. (£5.)—L. O. JOHNSON, "Peppers," Ashurst, Steyning, Sussex, **Kings Barn Heedless** (entered for Vol. 42), born 9th January; s North Chapel Commander (5853), d Avisford Heedless 3rd (19881), s d Red Miller (4918).

III. (£2.)—Lord LECONFIELD, Petworth House, Petworth, Sussex, **Petworth Crystal 1st**, born 21st April; s Lock Toreador 2nd (5924), d Bluecoat Crystal 1st (17272), s d Birling Geoffrey 2nd (4252).

R.—Ditto, ditto, **Petworth Daisy 2nd**, born 2nd March; s Lock Toreador 2nd (5924), d Lynwick Daisy 16th (16066), s d Dogwood (3227).

C.—FRANK LENEY, Eaglesden, Benenden, Kent, **Eaglesden Duchess**, born 1st January; s Oakover Chevalier 10th (5815), d Oakover Duchess 2nd (18912), s d Mabledon Lad (4326).

CLASS 96.—*Sussex Bull, calved in or before 1926.* [2 entries.]

I. (£10) and Medal†—L. O. JOHNSON, "Peppers," Ashurst, Steyning, Sussex, **Kings Barn Sunbright** (6213), born 5th January, 1924; s Sunbridge (4573), d Avisford Heedless 3rd (19881), s d Red Miller (4918).

II. (£5) and Reserve for Medal†—Lord LECONFIELD, Petworth House, Petworth, Sussex, **Petworth Toreador 3rd**, born 23rd January; s Lock Toreador 2nd (5924), d Avisford Galatea (19879), s d Red Delight (4917).

*Silver Medal for the best Cow or Heifer in the Sussex Classes.

†Silver Medal for the best Bull in the Sussex Classes.

BRITISH FRIESIAN.

(£25 10s. towards the Prizes and the Silver Medals in the Friesian Classes were given by the British Friesian Cattle Society, and animals entered must be registered in the B.F.C.S. Herd Book proper, those registered in Supplementary Section not being eligible).

CLASS 97.—*British Friesian Cow or Heifer, any age, in-Milk.*

[12 entries.]

I. (£10).—THE HACHE HERD, Muntham Home Farm, Findon, Worthing, **Hache Amlable** (71740), born 18th September, 1923; s Clockhouse King Akirin (P.I. 11321), d Hache Ceres Untamed (45516), s d Hedges Second Series (P.I. 6427). (Last calf 30th November, 1926).

II. (£5).—ARTHUR ALLEN, The Manor, Chesterblade, Somerset, **Glen Werribee** (52964), born 15th April, 1921; s Dunninald Gaatsomairschaap (6175), d Fingringhoe Walnut (21080), s d Mordale Victor (1809). (Last calf 13th May, 1926).

III. (£2).—LORD RAYLEIGH, Terling Place, Chelmsford, Essex, **Terling Lead 18th** (57344), born 15th November, 1921; s Tarvin Zwarte Frits (P.I. 12805), d Terling Lead 12th (31140), s d Terling (impt.) Vic Bertus (4541). (Last calf 2nd April, 1927).

R.—J. R. UPSON, Saracens, Saunders Lane, Woking, Surrey, **Northdean Princess May 2nd** (85528), born 22nd March, 1924, bred by G. Holt Thomas, Northdean, Hughenden, High Wycombe, Bucks; s Northdean (impt.) Marthus Beatty (21081), d Northdean Princess May (55622), s d Bell Hollander (P.I. 7655). (Last calf 10th February, 1927).

CLASS 98.—*British Friesian Heifer, not in-Milk, calved in 1925.*

[11 entries.]

I. (£10) and Medal*.—Capt. JOHN CHRISTIE, M.C., Glyndbourne, Ringmer, Lewes, **Glyndbourne Elsie**, born 27th January; s Glyndbourne (impt. 1922) Rikus (20111), d Moss Elsie 4th (40834), s d Moss Adema (4223).

II. (£5) and Reserve for Medal*.—HUBERT M. MARTINEAU, The Lodge, Holyport, Berks, **Northdean Meibloem 6th** (P.I. 96984), born 4th June, bred by G. Holt-Thomas, Northdean House, Hughenden, High Wycombe, Bucks; s Dell Hollander (P.I. 7655), d Colton Bram Sunset 2nd (28042), s d Colton (impt.) Vic Bram (3705).

III. (£2).—J. R. UPSON, Saracens, Saunders Lane, Woking, Surrey, **Northdean Meibloem 5th** (P.I. 96982), born 1st January, bred by G. Holt Thomas, Northdean, Hughenden, High Wycombe, Bucks; s Northdean (impt. 1922) Marthus Beatty (21081), d Moordale (impt.) Meibloem (18708), s d Max (F.R.S. 5899).

R.—THE HACHE HERD, Muntham Home Farm, Findon, Worthing, **Hache Circe** (P.I. 93882), born 10th February; s Hache Cerjan Ulysses (P.I. 14165), d Seaton Johanna (P.I. 30858), s d Dunninald (impt.) Cesar 2nd (3813).

*Silver Medal for the best Cow or Heifer in the British Friesian Classes.

CLASS 99.—*British Friesian Heifer, calved in 1926.* [17 entries.]

I. (£10.)—J. R. UPSON, Saracens, Saunders Lane, Woking, Surrey, **Henbury Pretty Polly** (P.I.), born 24th May, bred by W. A. Brocklehurst, Henbury Park, Macclesfield; s Wychmor Frits (P.I. 7215), d Henbury Sietske Sceptre (P.I. 62488), s d Norton (impt.) Taurus (4269).

II. (£5.)—THE HACHE HERD, Muntham Home Farm, Findon, Worthing, **Hache Duchess**, born 25th April; s Hache Cerjan Ulysses (P.I. 14165), d Hache Windsor (61962), s d Clockhouse King Akrin (P.I. 11321).

III. (£2.)—MISS SOPHIA GEORGENA STRANGEWAYS, The Manor, Shapwick, Somerset, **Shapwick Suave**, born 14th August; s Iken Bertus 14th (23197), d Beccles White Rose (68412), s d Northdean Myrtle Duke (12387).

R.—THE HACHE HERD, Muntham Home Farm, Findon, Worthing, **Hache Dearest**, born 2nd June; s Hache Cerjan Ulysses (P.I. 14165), d Hache Well-beloved (61942), s d Clockhouse King Akrin (P.I. 11321).

CLASS 100.—*British Friesian Bull, calved in or before 1924.* [4 entries.]

I. (£10.)—THOMAS MANSFIELD, Winterbourne Court, Winterbourne, **Commieston Bromley Ceres** (P.I. 22379), born 6th February, 1923, bred by Andrew Spence, Commieston, Montrose; s Knebworth (impt. 1922) Ceres 2nd (20607), d Commieston (impt. 1922) Folly (60178), s d Kopjeskzaal Dream 2nd (S.A.S.B. 2098).

II. (£5.)—H. KENNETH HENLY, Sands Farm, Calne, Wilts, **Groundwell Fokke 33rd** (25829), born 25th July, 1924, bred by Messrs. Sayers, Blunsdon, Swindon; s Hedges (impt.) Fokke 2nd (3993), d Groundwell Gowan (45488), s d Knebworth Caesar's Dutchman (10073).

III. (£2.)—ARTHUR HENRY TARR, Westfield, Chedzoy, Bridgwater, **Haydon Bountiful Bishop**, born 24th May, 1924, bred by Mrs. James Putman, Farringdon, Exeter, Devon; s Haydon (impt. 1922) Pilot (20279), d Haydon Bountiful 2nd, s d Terling Jewel (P.I. 10709).

R.—W. J. POPE DAVIES, Pixley Court, Ledbury, **Swords Hollander** (27139), born 19th December, 1924; s Northdean (impt. 1922) Marthus Beatty (21081), d Northdean Mavis 2nd (64790), s d Dell Hollander (7655).

CLASS 101.—*British Friesian Bull, calved in 1925.* [5 entries.]

I. (£10) and Medal†—Mrs. E. HARBOLD, Kirk Deighton Hall, Wetherby, **Donneside Beatty** (28357), born 2nd March, bred by the Trustees of Sir A. M. Robert, Bart., Donneside, Tarland, Aboyne, Aberdeenshire; s Hache Apollo (P.I. 22925), d Donneside Bessie (60910), s d Donneside Hatsumerschaap (P.I. 13719).

II. (£5.)—F. & T. NEAME, The Offices, Macknade, Faversham, Kent, **Macknade Viscount**, born 26th November; s Hache Cerbert Viking (P.I. 17107), d Macknade Premier's Fronkje (P.I. 73840), s d Macknade (impt. 1922), Premier (20887).

III. (£2.)—MISS SOPHIA GEORGINA STRANGWAYS, The Manor, Shapwick, Somerset, **Shapwick Silvio** (29863), born 21st February; s Northdean Myrtle Duke (12378), d Beccles Bonnie Belle (27402), s d Beccles (impt.) Lodewijk.

†Silver Medal for the best Bull in the British Friesian Classes.

R.—Sir JAMES HILL, Bart., Hexton Manor, Hitchin, Herts, **Moordale Prince of Holland** (P.I. 29373), born 26th October, bred by Edward Hollingworth, C.B.E., Moordale, Dobercross, Yorks; s Hache Cerjan Ulysses (P.I. 14165), d Hache Icelt (P.I. 39264), s d Tredegar Prince of Holland (4579).

CLASS 102.—*British Friesian Bull, calved in 1926.* [6 entries.]

I. (£10) and Reserve for Medals.—THE HACHE HERD, Muntham Home Farm, Findon, Worthing, **Moordale Pioneer** (P.I.), born 12th March, bred by E. Hollingworth, Moordale, Dobercross, Yorks; s Hache Buringa (P.I. 25871), d Moordale Maybloom (P.I. 30048), s d Garton (impt.) Bravo (3895).

II. (£5.)—HUBERT M. MARTINEAU, The Lodge, Holyport, Berks., **Holyport Jouseries** (P.I.), born 6th May; s Hedges Second Series (P.I. 6427), d Felhampton Joukje (P.I. 45036), s d Golf Botermijn 2nd (P.I. 6327).

III. (£2.)—Capt. JOHN CHRISTIE, M.C., Glyndebourne, Ringmer, Lewes, **Glyndebourne Rikmaster**, born 5th June; s Glyndebourne (impt. 1922) Rikus (20111), d Glyndebourne Breeze (71578), s d Dunninald Haeyemairschaap (P.I. 7699).

R.—F. & T. NEAME, The Offices, Macknade, Faversham, Kent, **Macknade Victor 3rd** (P.I.), born 5th May; s Hache Cerbert Viking (P.I. 17107), d Macknade (impt. 1922) Froukje (64170), s d Equestrian of Gloria (S.A.S.B. 229).

ABERDEEN-ANGUS.

(£20 towards the Prizes in the Aberdeen-Angus Classes were given by the English Aberdeen-Angus Cattle Association).

CLASS 103.—*Aberdeen-Angus Cow or Heifer, in-Milk, calved before 1st December, 1924.* [3 entries.]

I. (£10.)—Sir HENRY BELL, Bart., Mynthurst, Reigate, Surrey, **Black Ink** (77657), born 31st December, 1923, bred by Ainslie Watson, Mindrum, Northumberland; s Evron of Ballindalloch (45890), d Betsy 2nd of the Dell (58448), s d Ebor of Harviestoun (32960). (Last calf 19th December, 1926).

II. (£5.) F. HAROLD TURNBULL, Lower House Farm, Llantwit Major, near Cardiff, **Kerella of Llantwit** (77571), born 27th March, 1924; s Proud Padre (51422), d Kindness Pride of Frampton (64083), s d Moose (34877). (Last calf 21st December, 1926).

III. (£2.)—Ditto, ditto, **Black Bara** (70968), born 24th January, 1922, bred by D. M. Allen, Ballintomb, Crantown-on-Spey; s Evendale of Bleaton (48139), d Blackskin of Ballintomb (53609), s d George R. of Ballindalloch (30611). (Last calf 21st January, 1927).

CLASS 104.—*Aberdeen-Angus Heifer, calved on or after 1st December, 1924.* [8 entries.]

I. (£10) and Champion†—Major J. A. MORRISON, D.S.O., Basildon Park, Rending, Berks, **Elite 3rd of Basildon** (79298), born 6th January, 1925; s Prince Francis (51322), d Evlerie (58364), s d Junior Eric (34725).

†Given by the English Aberdeen-Angus Cattle Association, a Silver Medal for the best Animal of opposite sex.

II. (£5.)—J. J. CRIDLAN, Maisemore Park, Gloucester, **Evergreen 106th** (78281), born 20th December, 1924; s Eric 2nd of Maisemore (43525), d Evergreen 61st (66750), s d Idyll of Maisemore (36219).

III. (£2.)—Charles THOMAS SCOTT, Buckland Manor, Broadway, Worces., **Ruby 4th of Buckland** (79727), born 25th December, 1924; s Rufus of Buckland (53693), d Ruby of Buckland (57174), s d Glen Cogie Eldorado (33242).

R.—F. HAROLD TURNBULL, Lower House Farm, Llantwit Major, near Cardiff, **Gwendolen of Llantwit** (79961), born 19th February, 1925; s Pranksome (53401), d Gwalmyra (67339), s d Everfoil of Maisemore (41539).

H.C.—Colonel C. W. SOFER WHITBURN, Amport St Mary's, Andover, Hants., **Pamela of Amport** (82733), born 4th February, 1925; s Primate of Amport (75381), d Pelegonia of Curragh (71935), s d Just of Harviestown (38113).

H.C.—J. J. CRIDLAN, Maisemore Park, Gloucester, **Pride of Maisemore 27th**, born 7th April, 1925; s Evader of Harviestown (52626), d Pride of Maisemore 19th (64341), s d Idyll of Maisemore (36219).

CLASS 105.—*Aberdeen-Angus Heifer, calved on or after 1st December, 1925. [14 entries.]*

I. (£10) and Reserve for Champion†—J. J. CRIDLAN, Maisemore Park, Gloucester, **Blackbird 21st of Maisemore** (80728), born 10th January, 1926; s Proud Eric of Maisemore (57939), d Blackbird 18th of Maisemore (73788), s d George R. of Ballindalloch (30611).

II. (£5.)—H.R.H. THE PRINCE OF WALES, K.G., Believer, Princetown, Devon, **Witch 15th of Dartmoor** (80258), born 8th January, 1926; s Prince Priam (55661), d Witch 2nd of Dartmoor (61533), s d Rex of Port Love (36885).

III. (£2.)—EDWARD A. WIGAN, Conholt Park, Andover, Hants, **Blinkie** (81191), born 10th December, 1925, bred by John S. Grant, Skillymarno, Strichen, Aberdeenshire; s Pundit of Mayness (49137), d Bright Maid of Duthil (61591), s d Elam of Ballindalloch (37554).

R.—SIR HENRY BELL, Bart., Mynthurst, Reigate, Surrey, **Ishall**, born 2nd January, 1926; s Effendi of Doonholm (54406), d Mythurst Isolina 3rd (66415), s d General Petain of Frampton (39714).

V.H.C.—F. HAROLD TURNBULL, Lower Houes Farm, Llantwit Major, near Cardiff, **Patricia of Llantwit** (82587), born 1st January, 1926; s Proud Padre (51422), d Prince Pat of Frampton (64087), s d Moose (34877).

H.C.—Major J. A. MORRISON, D.S.O., Basildon Park, Reading, **Queen 5th of Basildon** (81892), born 6th January, 1926; s Prince Francis (51322), d Queen Alexandra (55835), s d Gardufur of Ballindalloch (31967).

H.C.—Charles THOMAS SCOTT, Buckland Manor, Broadway, Worcester-shire, **Lady Mary 7th of Buckland** (82317), born 7th April, 1926; s Victor 2nd of Buckland (55952), d Lady Mary 3rd of Buckland (70506), s d Etrurian of Bleaton (41498).

†Given by the English Aberdeen-Angus Cattle Association, a Silver Medal for the best Animal of opposite sex.

CLASS 106.—Aberdeen-Angus Bull, calved before 1st December, 1925.
[4 entries.]

I. (£10) and Champion*—J. J. CRIDLAN, Maisemore Park, Gloucester, **Evader of Harviestoun** (52626), born 30th May, 1922, bred by J. E. Kerr, Harviestoun Castle, Dollar; s Euripus of Ballindalloch (43615), d Evergola of Harviestoun (56657), s d Prince of the Wassail (23751).

II. (£5.)—Colonel C. W. SOFER WHITBURN, Amport St. Mary's, Andover, Hants, **Eski of Doonholm** (56860), born 11th December, 1923, bred by Lt.-Col. Norman Kennedy, Doonholm, Ayr; s Prince Benson of Ballindalloch (51308), d Estima (62713), s d Matador of Byewell (34848).

III. (£2.)—ROBERT BROWN MILLER, Newberries, Radlett, Herts, **Proud Mundel**, born 10th February, 1924, bred by D. M. Allan, Ballintomb, Grantown-on-Spey; s Evendale of Bleaton (48139), d Pride of Comrie (51498), s d Prince Blueblood of Ballindalloch (29807).

CLASS 107.—Aberdeen-Angus Bull, calved on or after 1st December, 1925. [9 entries.]

I. (£10) and Reserve for Champion*—EDWARD A. WIGAN, Conholt Park, Andover, Hants, **Jingo of Basildon** (62082), born 13th January, 1926, bred by Major J. A. Morrison, Basildon Park, Goring, Reading; s Prince Francis (51322), d Jovial of Basildon (74715), s d Emperor of Basildon (50238).

II. (£5.)—J. J. CRIDLAN, Maisemore Park, Gloucester, **Everde of Maisemore** (61686), born 12th December, 1925; s Black Everde of Maisemore (56216), d Evergreen 97th (73795), s d George R. of Bellindalloch (30611).

III. (£2.)—Sir HENRY BELL, Bart., Mynthurst, Reigate, Surrey, **Erebus of Candacraig** (61475), born 14th January, 1926, bred by F. L. Wallace of Candacraig, Strathdon, Aberdeenshire; s Prince of Salonica (55645), d Eburnette 2nd of Candacraig (68364), s d Ego (41252).

R.—F. HAROLD TURNBULL, Lower House Farm, Llantwit Major, near Cardiff, **Black Bandit of Llantwit** (60768), born 28th February, 1926; s Proud Padre (51422), d Black Bara (70968), s d Evendale of Bleaton (48139).

H.C.—CHARLES THOMAS SCOTT, Buckland Manor, Broadway, Worcestershire, **Judge 2nd of Buckland** (62124), born 18th February, 1926; s Jack 4th of Buckland (57312), d Elasticity 2nd of Buckland (70502), s d Proud George (38595).

C.—CARL HOLMES, Clover Top Farm, Welwyn, Herts, **Blackburn of Bywell** (60815), born 17th February, 1926, bred by Viscount Allendale, Dilston, Corebridge-on-Tyne; s Erebus of Harviestoun (56780), d Black Maisie of Bywell (73354), s d Placeman of Bywell (48929).

CHALLENGE CUP.

GIVEN BY THE ENGLISH ABERDEEN-ANGUS CATTLE ASSOCIATION.

The Venning Cup for the Exhibitor gaining the most points in the Aberdeen-Angus Classes on the basis of 4 points for a first prize, 3 points for a second, 2 points for a third, 1 point for a Reserve, 2 points for a Championship, and 1 point for a Reserve Championship.

J. J. CRIDLAN.

*Given by the Aberdeen-Angus Cattle Society, a Silver Medal for the best Animal in the Aberdeen-Angus Classes.

RED POLL.

(£20 towards the Prizes in the Red Poll Classes and the Silver Medals were given the Red Poll Cattle Society).

by

CLASS 108.—*Red Poll Cow or Heifer, in-Milk, calved before 1925.*
[12 entries.]

I. (£10) and Reserve for Medal*—Viscount FOLKESTONE, Estate Office Longford Castle, Salisbury, **Longford Duck**, born 12th September, 1921; s Ashmoor Foreman, d Longford Kingfisher, s d Longford Monarch.

II. (£5.) Lieut.-Col. C. HEYWORTH-SAVAGE, Bradwell Grove, Burford Oxford, **Necton Dolores** (26401), born 3rd August, 1917, bred by Harvey Mason, Necton Hall, Swaffham, Norfolk; s Shrewsbury (10489), d Nector Dolly (24165), s d Turk (10115).

III. (£2.) Mrs. M. M. FITZGERALD, Marsden Manor, Cirencester, Glos. **Antwick Familiarity** (30634), born 19th January, 1922, bred by Major H Colmore, Banbury; s Knepp Ajax (11397), d Antwick Familiar (27390), s c Dairy King (10547). (Last calf 15th March, 1927).

R.—Major J. A. MORRISON, D.S.O., Basildon Park, Reading, Berks, **Basildon Comfit** (29582), born 9th May, 1921; s Sudbourne Miner (11492), d Sudbourne Comfit (25965), s d Sudbourne Credit (10796). (Last calf 21st November, 1926).

H.C.—Ditto, ditto, **Basildon Royal Rosie** (30733), born 23rd July, 1922; s Sudbourne Miner (11492), d Kettleburgh Rosie 2nd (24073), s d Freetrader (10029).

H.C.—Ditto, ditto, **Basildon Rosalind 2nd** (29584), born 1st November, 1921; s Basildon Orpheus (11557), d Basildon Rosalind (26653), s d Harefield Recruit (10865).

CLASS 109.—*Red Poll Heifer, calved in 1925.* [5 entries.]

I. (£10) and Medal*—Lieut.-Col. C. HEYWORTH-SAVAGE, Bradwell Grove, Burford, Oxford, **Bradwell Duchess** (35310), born 18th July; s Bradfield Nathan (12945), d Necton Dolores (26401), s d Shrewsbury (10489).

II. (£5.) Lieut.-Col. R. C. BATT, C.B.E., M.V.O., Gresham Hall, Norwich, **Gresham Flower Girl** (35727), born 6th February; s Basildon Royal (11882), d Helmingham Rustic Gal (25671), s d Helmingham Rupert (10576).

III. (£2.)—Lord BLEDISLOE, K.B.E., Lydney Park, Gloucester, **Lydney Fanny 3rd**, born 31st March; s Seven Springs Majioline, d Hoaden Fanny, s d Dogmatist.

R.—Major J. A. MORRISON, D.S.O., Basildon Park, Reading, Berks, **Basildon Rosebud 3rd** (35222), born 27th January; s Hanningfield Conductor (12646), d Basildon Rosebud (28492), s d Sudbourne Miner (11492).

CLASS 110.—*Red Poll Heifer, calved in 1926.* [12 entries.]

I. (£10.)—Lieut.-Col. C. HEYWORTH-SAVAGE, Bradwell Grove, Burford, Oxford, **Bradwell Gipsy** (Vol. 44), born 12th March; s Bredfield Nathan (12945), d Necton Gift (24739), s d Shrewsbury (10439).

*Silver Medal for the best Cow or Heifer in the Red Poll Classes.

II. (£5.)—Viscount TREDEGAR, Tredegar Park, Newport, Mon., **Tredegar Donna**, born 25th May; s Tredegar Bramble (13596), d Sprowston Belladonna (31741), s d Barwick Eagle (11553).

III. (£2.)—OWEN H. SMITH, Langham, Oakham, **Upton Primula**, born 8th February, bred by W. L. Horbury, Ditchford Farm, Moreton-in-the-Marsh; s Hatton Fabulist (11985), d Framlingham Poppy (25078), s d Framlingham Emperor (10720).

R.—CO-OPERATIVE WHOLESALE SOCIETY, Ltd., Estate Office, Cherhill, Wilts., **Compton Poppy**, born 14th August; s Gresham Rosecrucian (13760), d Strensham Poppy (28291), s d Strensham Rupert (11213).

V.H.C.—Mrs. M. M. FITZGERALD, Marsden Manor, Cirencester, Glos., **Marsden Mepris**, born 17th January; s Marsden Mars (13501), d Antwick Familiarity (30634), s d Knepp Afax (11397).

V.H.C.—Major J. A. MORRISON, D.S.O., Basildon Park, Reading, Berks, **Basildon Mabel 3rd**, born 26th February; s Basildon Recruit (12921), d South-down Maypole (30420), s d President (11438).

C.—Ditto, ditto, **Basildon Rosalind 4th**, born 22nd February; s Basildon Recruit (12921), d Basildon Rosalind 2nd (29584), s d Basildon Orpheus (11557)

CLASS 111.—*Red Poll Bull, calved in or before 1925.* [7 entries.]

I. (£10) and Medal†—Lord BLEDISLOE, K.B.E., Lydney Park, Lydney, Glos., **Colworth Emperor**, born 15th April, 1924, bred by Sir A. E. Bowen, Bart.; s Hatton Fabulist, d Colworth Beeswax, s d Plumstead Periscope.

II. (£5) and and Reserve for Medal†—Viscount TREDEGAR, Tredegar Park, Newport, Mon., **Tredegar Censor**, born 24th April, 1925; s Basildon Recorder (12522), d Bright Well Dawn (23909), s d Sir David (10363).

III. (£2.)—Mrs. M. M. FITZGERALD, Marsden Manor, Cirencester, Glos., **Marsden Mintine**, born 2nd June, 1925; s Antwick Minotaur (12200), d Harefield Christine (26213), s d Harefield Cracker (10861).

R.—Major J. A. MORRISON, D.S.O., Basildon Park, Reading, Berks, **Hutton Bright Boy**, born 17th May, 1924, bred by M. C. Pilkington (the late), Hutton Hall, Hutton, Essex; s Gressenhall Bright Boy (12306), d Hutton Apricot (27860), s d Hutton Huehnsman (11156).

CLASS 112.—*Red Poll Bull, calved in 1926.* [6 entries.]

I. (£10.)—Lieut.-Col. R. C. BATT, C.B.E., M.V.O., Gresham Hall, Norwich, **Gresham Mahomet**, born 18th February; s Basildon Royal (11882), d Gresham Matron (27711), s d Davyson 347th (10976).

II. (£5.)—Lieut.-Col. C. E. TURNER, D.S.O., Old Down, Tockington, near Bristol, **Oldown Faultless Guide**, born 16th February; s Oldown Faultless (13168), d Oldown Guiding Star (33012), s d Plumstead Pilgrim (11754).

III. (£2.)—Lieut.-Col. C. HEYWORTH-SAVAGE, Bradwell Grove, Burford, Oxford, **Bradwell Red Pepper** (Vol. 44), born 3rd February; s Bredfield Nathan (12945), d Kirton Pepperette (31322), s d Sudbourne Forerunner (11491).

R.—CO-OPERATIVE WHOLESALE SOCIETY, Ltd., Estate Office, Cherhill, Wilts., **Compton Hero 2nd**, born 10th June; s Hatton Hero (12322), d White-way Witchcraft (29432), s d Necton Gloucester (11423).

V.H.C.—Viscount FOLKESTONE, Estate Office, Longford Castle, Salisbury, **Longford Drake**, born 8th April; s Longford Wistful, d Longford Duck, s d Ashmoor Foreman.

†Silver Medal for the best Bull in the Red Poll Classes.

WELSH BLACK.

£10 towards the Prizes in the Welsh Black Classes and the Bronze Medals were given by the Welsh Black Cattle Society, and £15 by Sir Geo. Meyrick, and animals must have been registered or eligible for registration in the Welsh Black Cattle Herd Book).

CLASS 113.—Welsh Black Cow or Heifer, in-Milk, calved on or before November 30th, 1924. [4 entries.]

I. (£10.)—Mrs. E. H. SPOTTISWOODE, Gwern Hall, Bwlchgwyn, Wrexham, **Corwen Molly** (5206), born 18th December, 1920, bred by N. L. Moon, **Llandrillo**, Corwen; s Trumpet of Penrhyn (1142), d Hendle Dolly (3596).

II. (£5.)—Sir G. A. E. T. G. MEYRICK, Bart., Hinton Admiral, Hampshire and Bodorgan, Isle of Anglesey, **Bodorgan Blodwen**, born 17th January, 1923, s Penmynydd Caswallon (2062), d Bodelwa Shan 3rd (4158), s d Bodelwa Volunteer (1273). (Last calf 26th March, 1927).

III. (£2.)—ditto, ditto, **Bodelwa Shan 3rd** (4158), born 14th December, 1919, bred by O. E. Hughes, Bodelwa, Tyeroes, Isle of Anglesey; s Bodelwa Volunteer (1273), d Bodelwa Shan 2nd (2106), s d Ap Major (467). (Last calf 6th December, 1926).

R.—ditto, ditto, **Bodelwa Mair 3rd** (5026), born 4th December, 1920, bred by O. E. Hughes, Bodelwa, Tyeroes, Anglesey; s Bodelwa Volunteer (1273), d Bodelwa Mair A (2679). (Last calf 10th January, 1927).

CLASS 114.—Welsh Black Heifer, calved on or between December 1st, 1924, and November 30th, 1925. [6 entries.]

I. (£10) and Medal*.—Mrs. E. H. SPOTTISWOODE, Gwern Hall, Bwlchgwyn, Wrexham, **Gwern Adgof** (8720), born 19th April, 1925; s Caradoc of Glascoed (2436), d Taicochion 4th (2611).

II. (£5) and R. for Medal*.—Mrs. WILLIAMS-OWEN, Treveilyr, Bodorgan, S.O., Anglesey, **Treveilyr Dawn** (8873), born 12 February, 1925; s Penmynydd Iolo (2324), d Gwladys (3735), s d Nipper of Penryhn.

III. (£2.)—Mrs. E. H. SPOTTISWOODE, **Penywern Caradoges** (8540), born 11th September, 1925, bred by John Morris, Penywern, Talybont, Cards; s Caradoc of Glascoed (2436), d. Penywern Lill (3520).

R.—Sir G. A. E. T. G. MEYRICK, Bart., Hinton Admiral, Hampshire and Bodorgan, Isle of Anglesey, **Bodelwa Nette**, born 28th January, 1925, bred by O. E. Hughes, Bodelwa, Tyeroes, Isle of Anglesey; s Neuadd Idris (2302), d Bodelwa Nora 2nd (5031), s d Bodelwa Volunteer (1273).

H.C.—Mrs. E. H. SPOTTISWOODE, **Gwern Arran** (8723), born 26th September, 1925; s Nonsuch of Glascoed (2890), d Gwern Angharad (8717).

C.—Sir G. A. E. T. G. MEYRICK, Bart., **Bodorgan Shan**, born 4th December, 1924; s Bodelwa Colonel (2176), d Bodelwa Shan 3rd (4158), s d Bodelwa Volunteer (1273).

*A Bronze Medal for the best Cow or Heifer in the Welsh Black Classes.

CLASS 115.—Welsh Black Heifer, calved on or after December 1st, 1925. [5 entries.]

I. (£10).—Mrs. WILLIAMS-OWEN, Treveilyr, Bodorgan, S.O., Anglesey, **Treveilyr Diamond**, born 29th December, 1925; s Pennynydd Iolo (2324), d Treveilyr Ruby (5564), s d Bodelwa Volunteer (1273).

II. (£5).—Sir G. A. E. T. G. MEYRICK, Bart., Hinton Admiral, Hampshire and Bodorgan, Isle of Anglesey, **Bodorgan Gwena**, born 26th December, 1925; s Ystwyth Predominant (2695), d Bodorgan Lily 2nd (6919), s d Bodelwa George (466).

III. (£2.) Ditto, ditto, **Bodorgan Lilwen**, born 21st January, 1926; s Godelwa Colonel (2176), d Tycoes Buddug (5048), s d Bodelwa Volunteer (1273).

R.—Mrs. E. H. SPOTTISWOODE, Gwern Hall, Bwylchgwyn, Wrexham, **Gwern Buddug** (Vol. 15, not out), born 20th March, 1926; s Nonsuch of Glascoed (2890), d Taicochion 4th (2611).

H.C.—Sir G. A. E. T. G. MEYRICK, Bart., **Bodorgan Rosa**, born 21st January, 1926; s Ystwyth Predominant (2695), d Bodelwa Sally 2nd (5025), s d Bodelwa Volunteer (1273).

CLASS 116.—Welsh Black Bull, any age. [5 entries.]

I. (£10) and Medal†—A. GEORGE JOYNSON, Grove Hall, Capenhurst, Cheshire, **Cim Royalist** (2747), born 19th October, 1924, bred by W. Holland, Cim Farm, Abersoch, Carnarvonshire; s Bodowen King (1870), d Escuan Cadi (4914), s d Escuan Nero (1337).

II. (£5) and Reserve for Medal†—Mrs. WILLIAMS-OWEN, Treveilyr, Bodorgan, S.O., Anglesey, **Treveilyr Coron** (3237), born 18th December, 1924; s Pennynydd Iolo (2324), d Corwen Maggie (4356), s d Bodrida Lion (1209).

III. (£2.)—Mrs. E. H. SPOTTISWOODE, Gwern Hall, Bwylchgwyn, Wrexham, **Gwern Arwr** (3115), born 5th December, 1924; s Caradog of Glascoed (2436), d Tregarn Fawr (3763).

R.—Sir G. A. E. T. G. MEYRICK, Bart., Hinton Admiral, Hampshire and Bodorgan, Isle of Anglesey, **Snowdon Bran** (2645), born 11th July, 1923, bred by University College of North Wales, College Farm, Aber, Bangor, North Wales; s Madryn Laddie (1403), d Bryncian Nanw (4235), s d Bodelwa Volunteer (1273).

AYRSHIRE.

(£15 towards the Prizes in the Ayrshire Classes and the Gold Medal were given by the English Committee of the Ayrshire Cattle Herd Book Society, and animals entered must be registered or eligible for registration in the Society's Herd Book).

CLASS 117.—Ayrshire Cow in-Milk, calved before September 1st, 1923. [8 entries.]

I. (£10) and Medal*—Earl of EGLINTON AND WINTON, Horns Lodge, Tonbridge, Kent, mostly white, **Eglinton Mains Winsome** (68334), born 9th November, 1919; s Netherton Mazeppa (17227), d Eglinton Mains Sprightly (58037), s d Eglinton Mains Look Alive (14319).

†A Bronze Medal for the best Bull in the Welsh Black Classes.

*Gold Medal for the best animal in the Ayrshire Classes.

II. (£5) and Reserve for Medal*—Sir THOMAS FOWELL BUXTON, Bart., Woodridon, Waltham Abbey, Essex, white, brown spots, **Relief Miss Burnett 2nd**, born 1st February, 1923, bred by James Mackie, Relief Ecclefechan, N.B.; Dalfibble Flash Lad (23468), d Dalfibble Miss Burnett (65133), s d Dalfibble Special Piece (15847). (Last calf 27th January, 1927).

III. (£2).—CLEMENT EDWARD TORY, Holnest Park, Sherborne, white and brown, **Low Barclay Cinderella 4th** (88334), born 24th December, 1922, bred by W. McCraig; s Low Barclay Drummer Boy (23148), d Low Barclay Cinderella (86397), s d Low Barclay Sir John (11749).

CLASS 118.—Ayrshire Cow or Heifer, in-Milk, calved on or after September 1st, 1923. [5 entries.]

I. (£10).—The Earl of EGLINTON AND WINTON, Horns Lodge, Tonbridge, Kent, mostly white, **Drumfork Aggie** (entered in Herd Book), born February, 1924, bred by Hugh Mair, Drumfork, Manchine, Ayrshire; s High Tarbeg Triumph (20983), d Creech Muriel (74583).

II. (£5).—CLEMENT EDWARD TORY, Holnest Park, Sherborne, white and brown, **Kells of Southwick Rosebud 7th** (98866), born 25th March, 1924, bred by Alexander Weir, Kells of Southwick, Dumfries; s Parton Ajax (22175), d Kells of Southwick Rosebud 5th (59063). (Last calf 26th December, 1926).

III. (£2).—ALFRED BARCLAY, Manor Farm, Compton, Berks, white and brown, **Tower Doura** (2143), born 7th August, 1924, bred by David A. Dickie, Tower Sanquhar, Dumfriesshire; s Garelaugh Controller (18509), d Dolly Gray 4th (76268).

R.—Sir THOMAS FOWELL BUXTON, Bart., Woodridon, Waltham Abbey, Essex, brown and white, **Ballochmartin Florodora 3rd**, born 26th February, 1924, bred by Robert MacKay, Ballochmartin, Millport; s Ballochmartin Pearlstone (24287), d Ballochmartin Florodora (42853), s d Ballochmartin Crusoe (11750). (Last calf 12th December, 1926).

CLASS 119.—Ayrshire Heifer, calved on or after 1st September, 1925. [7 entries.]

1. (£10).—The Earl of EGLINTON AND WINTON, Horns Lodge, Tonbridge, Kent, white, brown marks, **Eglinton Babbie** (7090), born 6th October, 1925; Lessnessock Newmarket (23947), d Eglinton Carol (90124), s d Eglinton Mains Snow King (19734).

II. (£5).—ALFRED BARCLAY, Manor Farm, Compton, Berks, brown and white, **Compton No. No, Nanette** (6181), born 3rd December, 1925; s Lochinch Harry Lauder (24883), d Bargenoch Nanette (84519), s d Bargenoch Command (21687).

III. (£2).—CLEMENT EDWARD TORY, Holnest Park, Sherborne, brown and white, **Muston Blanche**, born 1st September, 1925; s Dalfibble Twinkling Star (19815), d Greenway Betty (87148), s d Threave Snow Bunting (16398).

R.—Sir THOMAS FOWELL BUXTON, Bart., Woodridon, Waltham Abbey, Essex, brown and white, **Woodridon Doddy**, born 25th September, 1925; s Low Milton Archer (23019), d Bargenoch Doddy (92453), s d Bargenoch Magnificent (9579).

*Gold Medal for the best animal in the Ayrshire Classes.

BLUE ALBION.

(£22 13s. 4d. towards the Prizes in the Blue Albion Classes were given by the Blue Albion Cattle Society, and only animals entered or accepted for entry in the Herd Book were eligible to compete. Animals entered or accepted for entry in the Special and Supplementary Registers were not eligible. The full Herd Book description of each animal entered must have been given).

CLASS 120.—*Blue Albion Cow or Heifer, in-Milk, calved before January 1st, 1925.* [4 entries.]

I. (£10.)—H. GILLETT, Ridgewood, Chorley, blue and white, **Bradbourne Cynthia 2nd** (2360), born 10th December, 1922, bred by A. Trafford, Home Farm, Yeldersley; s Bradbourne Champion (27), d Bradbourne Cynthia (2358). (Last calf 9th May, 1927).

II. (£5.)—R. H. HOLBECH, The Grange, Framborough, Banbury, blue and white, **Seagry Melody**.

III. (£2.)—RANDOLPH TORY, Charisworth Manor, Blandford, blue and white, **Blackmore Bertha**, born 1922, bred by R. Marriage, Horsfrith Park, Blackmore Ingatestone, Essex.

CLASS 121.—*Blue Albion Heifer, calved in 1925.* [2 entries.]

I. (£10.)—Lieut.-Col. W. E. HARRISON, Wychnor Park, Burton-on-Trent, blue roan, **Cliftonthorpe Solly 3rd** (10272), born 26th January, bred by E. H. Wheatley, Cliftonthorpe, Ashby-de-la-Zouch; s Cliftonthorpe Philo (277), d Cliftonthorpe Sally (3630).

II. (£5.)—A. GILLETT, Ridgewood, Chorley, blue and white, **Ridgewood Reliance** (190x68), born 27th March; s Bradbourne Monarch (11x34), d Ridgewood Dewdrop (190x26).

CLASS 122.—*Blue Albion Heifer, calved in 1926.* [6 entries.]

I (£10.)—Lieut.-Col. W. E. HARRISON, Wychnor Park, Burton-on-Trent, blue, **Eardswick Derby** (Vol. 7), born 10th January, bred by S. M. Irving, Eardswick Hall, Middlewich; s Eardswick Cropper (579), d Eardswick Chevroley (3976).

II. (£5.)—Ditto, ditto, blue and white, **Barton Lilac**, born 19th March; s Barton Jude (199), d lilac of Barton (S.R. 153).

III. (£2.)—A GILLETT, Chorley, dark blue roan, **Ridgewood Racia** (190x102), born 7th July; s Bradbourne Masterpiece 2nd, d Bradbourne Mermaid (2496).

R.—Ditto, ditto, blue and white, **Ridgewood Rose Harty**, born 6th June; s Bradbourne Showman, d Alethea.

C.—HERBERT WHITLEY, Primley, Paignton, S. Devon, blue roan, **Primley Solana**, born 14th October; s Primley Osmond (369), d Primley Noland.

CLASS 123.—*Blue Albion Bull, any age.* [8 entries.]

I. (£10.)—Lieut.-Col. W. E. HARRISON, Wychnor Park, Burton-on-Trent, blue roan, **Bank Champion** (183), born 28th July, 1921, bred by G. W. Axe, Uttoxeter; s Bank Baron (1), d Bank Marion (68).

II. (£5.) A. GILLET, Ridgewood Heath, Charnock, Chorley, Lancs., dark blue roan, **Ridgewood Romeo**, born 11th November, 1924; s Bradbourne Showman (235), d Bradbourne Moreen (2512), s d Lathkill Lad.

III. (£2.) HERBERT WHITLEY, Primley, Paignton, S. Devon, blue roan and white, **Primley Rolsterer**, born 12th July, 1925; s Primley Osmund (369), d Forget-me-not (418).

R. --JAMES D. BEAK, Maiden Bradley, near Bath, blue roan, **Barton Don**, born 23rd December, 1924, bred by Lieut.-Col. W. E. Harrison, Wychnor Park, Burton-on-Trent; s Barton Jude, d Bradbourne Almond.

H.C. MISS GERTRUDE MARJORIE MILLS COUSENS, Sutton Benger, Chippenham, Wilts, blue roan and white, **Avon Colonel**, born 15th April, 1926; s Seagry General, d Grasmere Sibyl.

C. R. H. A. HOLBECK, The Grange, Framborough, Banbury, blue roan, **Pike Major**, born 20th June, 1925, bred by J. D. Seals, Home Farm, Snelston, Ashbourne; s Copper Chief, d Bradbourne Bountiful.

JERSEY.

CLASS 124. *Jersey Cow, in-Milk, calved before 1924.* [17 entries.]

I. (£10) and Champion (£10)* Sir G. STANLEY WHITE, Bart., Hollywood Tower, near Bristol, whole, **Freda of Hollywood**, born 16th January; s Pioneer's Victory of Hollywood, d Freesia of Hollywood, s d Hero of Hollywood. (Last calf 4th April, 1927).

II. (£5) and Reserve for Champion* H. LEYBORNE POPHAM, Hunstrete House, Pensford, near Bristol, whole, **Beauvelande Doreen**, born 22nd June, 1920, bred by S. de la Haye, St. Martin's, Jersey; s Beauvelande George (13183) d Doreen's Buttercup (25740 P.S.H.C.), s d Dairylike's Majesty (12583). (Last calf 25th April, 1927).

III. (£2.) GEORGE CROSS, Smarts Hill, Penshurst, Kent, whole, **Doreen**, born 4th March, 1923, bred by . Ruggles Buse, Spains Hall, Braintree; s Park Keeper, d Lady Daphne, s d Minorea Jolly Sultan. (Last calf 24th December, 1926).

R. and V.H.C. ARTHUR WILLIAM HUNTINGTON, Wellesbourne House, Warwick, broken, **Golden Maid Light**, born 7th April, 1922, bred by W. P. Jean, St. Lawrence, Jersey; s Golden Maid's Double, d Lily Light 4th.

H.C. MRS. EDGAR WATTS, Eastwood Park, Falfield, Glos., broken, grey fawn, **Galen** (1896), born 4th October, 1921, bred by P. J. Michel, St. Peter's, Jersey, C.I.; s Xenia's Oxford King (14174 P.S.H.C.), d Ranere (22508 P.S.C.), s d Spotless Noble (11551 P.S.H.C.). (Last calf 13th January, 1927).—Sir G. STANLEY WHITE, Bart., Hollywood Tower, near Bristol, whole, **Primula of Hollywood**, born 13th December, 1921; s Beauveland Emperor, d Poppy of Hollywood, s d Pepper. (Last calf-1st December, 1926).—Ditto, ditto, broken, **Rosebay of Mayfield 4th**, born 20th June, 1921, bred by W. P. Baudin, St. Lawrence, Jersey; s Cedar's Golden Oxford, d Rosebay of Mayfield 2nd, s d Bermuda's You'll do Lad. (Last calf 1st April, 1927).

*Given by the English Jersey Cattle Society, for the best Cow or Heifer, entered or eligible for entry in the English Jersey Herd Book, competing in the Jersey Classes.

CLASS 125.—*Jersey Cow or Heifer, in-Milk, calved in 1924.* [6 entries.]

I. (£10.)—GEORGE CROSS, Smarts Hill, Penshurst, Kent, whole, **Ecclesden Countess**, born 22nd June, bred by W. Butcher, Ecclesden Manor, Worthing; s Ecclesden Pilot, d Ecclesden Cowslip, s d Wotton Red Par.

II. (£5.)—Sir G. STANLEY WHITE, Bart, Hollywood Tower, near Bristol, broken, **Silver Medallion**, born 11th March, bred by Mrs. E. le Sueur (imported) s Bullseye, d Susa, s s Gallieni.

III. (£2.)—Viscount PORTMAN, Buxted Park, Uckfield, Sussex, whole, **Winsome**, born 19th February, bred by Mr. A. E. Renouf, Reading; s Broadlands Son (12858), d Les Haies Dorothy (28372), s d Petune's Lad (13068).

R.—H. LEYBORNE POPHAM, Hunstrete House, Pensford, near Bristol, whole, **Hunstrete Sultan's Victoria**, born 23rd October; s Master Sultan (14698), d Victoria Alexandra (34, 451), s d Prince Prudence 2nd (13389). (Last calf 15th December, 1926).

CLASS 126.—*Jersey Heifer, in-Milk, calved in or since 1925.* [6 entries.]

I. (£10.)—GEORGE CROSS, Smarts Hill, Penshurst, Kent, whole, **Lily of Killarney**, born 12th January, bred by Jos. Le Couteur, St. John, Jersey; s Lilys Pride King, d Rosebay of Mayfield 4th. (Last calf 29th March, 1927).

II. (£5.)—Ditto, Ditto, whole, **Penshurst Cleopatra**, born 14th April; s Penshurst Yellow Prince, d Eastern Queen Laxton, s d Dames Gambogue.

III. (£2.)—R. G. BERKELEY, Spetchley Park, near Worcester, nearly whole, **Gaiety**, born 18th May; s Conqueror, d So Gay XXXVI (465), s d Mytilda's Beau (5679).

R.—ARTHUR WILLIAM HUNTINGTON, Wellesbourne House, Warwick, whole, **Wellesbourne Doll**, born 6th April; s Dreaming Sultan, d Harmonious Doll s d Gates Knight.

CLASS 127.—*Jersey Bull, calved before 1925.* [3 entries.]

I. (£10.)—Mrs. BERTRAM CATER, Hodges Farm, Lower Froyle, Alton, Hants, whole, **Cupid** (13894), born 25th March, 1921, bred by Major Hon. H. Pearson, Cowdray; s Pioneer's Noble (12416), d Roselle (31384), s d Northcliffe (12728).

II. (£5.)—GEORGE CROSS, Smarts Hill House, Penshurst, Kent, whole, **Penshurst Coeur de Lion**, born 19th April, 1924; s Penshurst Yellow Prince, d Gloxalia 2nd, s d King Capsicum.

III. (£2.)—Mrs. E. M. KEMBALL, Wolford Lodge, Dunkeswell, Cullompton, Devon, whole, **Troubadour**, born 28th July, 1924, bred by W. R. H. Chappel, Great Duryard, Exeter; s Hunstrete Tuneful Lad (14322), d Blackie, s d Probacchus (13085).

CLASS 128.—*Jersey Bull, calved in 1925.* [4 entries.]

I. (£10.)—Mrs. W. E. BRIGGS, The Grange, North Stoke, near Wallingford, black, **North Stoke's Beechnut**, born 16th April, bred by A. Sale, Aston Rowant; s Lenton Rupert (14668), d Beechwood, Success, s d General Cowslip (10960).

II. (£5.)—Right Hon. VISCOUNT PORTMAN, Buxted Park, Uckfield, Sussex, whole, **Buxted Solario**, born 15th August; s Rapkyns Perfect Knight (14760), d Buxted Poppy, s d Bright Raleigh (13179).

III. (£2.)—HAYDON STEPHEN FOX, Sharelands, Blackboys, Sussex, whole, **Sharelands Perfect Surprise**, born 12th August; s Rapkyns Perfect Knight (13716), d April Queen, s d Golden Cid (13286).

R.—H. LEYBORNE POPHAM, Hunstrete House, Pensford, near Bristol, broken, **Napoleonette's You'll Do**, born 30th April, bred by R. R. Lempriere, Rosel Manor, Jersey; s You'll Do's Volunteer (14832), d Fern's Napoleonette (22971 P.S.H.C.), s d Fern's Oxford Noble (11684).

CLASS 129.—*Jersey Bull, calved in 1926.* [12 entries.]

I. (£10.)—MRS. EVELYN, Wotton House, Dorking, whole, **Wotton Aeolus**, born 3rd July; s Wotton Airman 2nd, (14502), d Wotton Pink May (Vol. 30, 400), s d Red Cloud (11818).

II. (£5.)—Sir G. STANLEY WHITE, Bart., Hollywood Tower, Bristol, whole, **Sultan of Hollywood**, born 19th May; s Dreaming Sultan, d Windsor Daughter, s d Xenia's Son.

III. (£2.)—GEORGE CROSS, Smarts Hill House, Penshurst, Kent, whole, **Beau Geste**, born 1st April, bred by W. Wilkins, Long Marston, Tring; s Nice Boy, d Old Wells Sweeping Pride, s d The Sweep.

R.—ARTHUR WILLIAM HUNTINGTON, Wellesbourne House, Warwick, whole, **Louvain**, born 19th March, bred by R. Bruce Ward, Godinton, Ashford, Kent; s St. Louis, d Parlora, s d Pilgrim.

H.C. Mrs. V. E. BRIGGS, The Grange, North Stoke, near Wallingford, **North Stoke Majesty**, born 31st March; s North Stoke Glory, d Volunteer's Remembrance 3rd, s d Volunteer's Majesty.—Right Hon. VISCOUNT PORTMAN, Buxted Park, Uckfield, Sussex, whole, **Corner Stone**, born 2nd May, bred by Dr. H. Corner, Brook House, Southgate; s Cid's Inkerman (13866), d Jap's Juanita, s d Matchless Commodore (12385).

C.—MRS. MANSIE-JONES, Bossington House, Stockbridge, Hants, whole, **Starlight Boss**, born 5th May; s Puck (I.H.B. 6210, P.S.H.C.), d Coin Varin Stella, s d Bullseye (14557).

GUERNSEY.

(£20 towards the Prizes in the Guernsey Classes were given by the English Guernsey Cattle Society).

CLASS 130.—*Guernsey Cow, in-Milk, calved before 1924.* [19 entries.]

I. (£10.)—Sir ERIC HAMBRO, K.B.E., Milton Abbey, Blandford, Dorset, fawn and white, **Clatford Meadow Sweet 12th** (15163), born 2nd August, 1920, bred by —, Forster, Clatford Mills, Andover, Hants; s Glanville Bullet (3480), d Clatford Meadow Sweet 6th (11191), s d Clatford Jewel (2717). (Last calf 1st January, 1927).

II. (£5.)—Capt. E. JENKINS, Netherleigh, Hayle, Cornwall, fawn and white, **Boscarne Butler Queen** (15079), born 2nd February, 1920, bred by J. E. Hoskin, Boscarne St. Buryan, Cornwall; s Stagenhoe Duke 2nd (3596), d Boscarne Butter Maid (13288), s d Boscarne Slacker (3087).

III. (£2.)—**Mrs. J. SUTCLIFFE PYMAN**, Norsebury, Sutton Scotney, Hants., pale fawn and white, **Fullerton Broom** (17739 H.B.), born 30th July, 1922, bred by Mr. W. Cory, Fullerton Manor, Andover, Hants; s **Heaume's Honour** (3952 H.B.), d **Fullerton Pansy** (10700 H.B.), s d **Roeque**. (Last calf 11th February, 1927).

R.—**C. NORMAN**, Moor Place, Much Hadham, Herts., lemon and white, **Bosistow Iris**, born 10th January, 1918, bred by H. H. Laity, Bosistow, Porthcurnow, Cornwall; s **Penwith's Pride** (3197), d **Bosistow Irene** (10513), s d **Godolphin Sambo** (2450).

V.H.C.—**LT.-COL. SPENCER FOLLETT**, Rockbeare Manor, Devon, fawn, **Glencairn Cheminante**, born 19th July, 1920, bred by A. de Tocqs, Guernsey; s **Lenore's Sequel of Vimiera**, d **Cheminante 3rd du Gardinet**, s d **Raymond of the Preel 13th**. (Last calf 26th March, 1927).

H.C.—**E. G. MACANDREW**, Pallinghurst, Baynards, Horsham, fawn and white, **Fleury's Rosy 5th** (13516), born 8th June, 1916, bred by H. Fleury, Terre Norglot, St. Saviour's, Guernsey; s **Governor of the Corleincy**, d **Fleur's Rosy 3rd**.—**C. NORMAN**, Moor Place, Much Hadham, Herts, red fawn and white, **Hadham Maid**, born 9th May, 1921; s **Downe Star of Honeymoon** (3909), d **Hadham Maid of the Mourants** (14399), s d **Monarch of the Spurs** (3917).

C.—**VISCOUNT LASCELLES**, Goldsborough Hall, Knaresborough, fawn and white, **Nellie Lubin's Sequel 4th**, born 23rd February, 1921, bred by John N. Herivel, High Street, Alderney; s **Shrapnel of Balmoral**, d **Nellie 3rd of the Lubin**.

CLASS 131.—Guernsey Heifer, in-Milk, calved in 1924. [10 entries.]

I. (£10.)—**A. CHESTER BEATTY**, Calehill Park, Little Chart, Ashford, Kent, fawn and white, **Calehill Dewdrop** (20201), born 14th March; s **Lynchmere Lord Roberts 13th** (3748), d **Engen Dewdrop 6th** (15329), s d **Engen Gay Boy 2nd** (3696). (Last calf 15th October, 1926).

II. (£5.)—**W. ROACH**, Trewidden, Penzance, lemon and white, **Fern 2nd of La Galle** (23279), born 4th July, bred by C. E. Roberts, La Gallie, St. Peter's; s **Gold Cup's Major** (5599), d **Fern of La Gallie** (21241).

III. (£2.)—**SIR ERIC HAMBRO, K.B.E.**, Milton Abbey, Blandford, Dorset, fawn and white, **Hayes Lady Beauty** (20770), born 1st January, bred by the late Sir E. A. Hambro, K.C.V.O., Hayes Place, Kent; s **Downe Warbler's Dream 4th** (4773), d **Lady Beauty 3rd of the Briquet** (17752 A.R.), s d **Golden Noble 2nd of the Briquet** (3618 O.P.).

R.—**Mrs. J. SUTCLIFFE PYMAN**, Norsebury, Sutton Scotney, Hants, dark fawn and little white, **Clara's Clematis of Maple Lodge**, born 24th December, bred by E. P. Mahy, Maple Lodge, Vale, Guernsey; s **Lively's Delight** (4708 P.S., H.B.), d **Clara's Floe 2nd of Maple Lodge** (22411 P.S., H.B.), s d **Blanchette Honour 3rd** (4365 H.B.). (Last calf 26th March, 1927).

V.H.C.—**SIR ERIC HAMBRO, K.B.E.**, fawn, **Kettys Butterfat** (21164), born 31st January, bred by J. L. Hocurt, Petite Hougue, Vale, Guernsey; s **Primrose Butterfat** (4535), d **Ketty of Petites Hougues** (17723), s d **Otto of the Villa Baudu** (3680).

H.C.—**Mrs. HOWARD PALMER**, Heathlands, Wokingham, Berks, fawn and white, **Murrell Daisy** (20299), born 10th March; s **Nelly's Fancy** (4886), d **Murrell Demure** (15650), s d **Murrell Jolly Laddie** (3766).

C.—The Misses HARGREAVES, Nazeing Park, Essex, fawn and little white, **Nazing Marigold 3rd**, born 18th October; s Downe Star of Honeymoon, d Hadham Marigold 3rd, s d Ladcock Prince Albert. (Last calf 1st April, 1927).

CLASS 132.—Guernsey Heifer, calved in 1925. [9 entries.]

I. (£10.)—W. WHITE & SONS, Taunton, Somerset, yellow and white, **Tregonning Pansy 13th** (22985), born 3rd July, bred by G. Blight & Sons, Tregonning Breage, Helston, Cornwall; s Hornblotton Golden Arch (5092), d Tregonning Pansy 4th (11739), s d Tregonning David (2660). (Last calf 7th April, 1927).

II. (£5.)—A CHESTER BEATTY, Calehill Park, Little Chart, Kent, fawn and white, **Calehill Mimosa** (21990), born 29th January; s Retsy's Rex of Ponchez (4792, P.S.), d Mimosa of Maison de Bas (21553), s d Juno of the Camp. (Last calf 6th April, 1927).

III. (£2.)—W. DUNKELS, Fernhill Park, Windsor Forest, Berks, fawn and white, **Donnington Hettie 45th** (21794), born 21st February, bred by A. Harris, Donnington Manor, Chichester; s Clatford Jester (4734), d Donnington Hettie 18th (14254), s d Donnington Noble 9th. (Last calf 25th March, 1927).

R.—W. ROACH, Trewidden, Penzance, lemon and white, **Trewidden Favourite 3rd** (21863), born 2nd January; s Trewidden Magnet (4357), d Favourite of Sunnyside (11335).

V.H.C.—MRS. MANSFIELD, Winterbourne Court, Winterbourne, fawn, **Dahlia Duchess 5th** (24263), born 16th February, 1925, bred by Mr. F. Mauger, Bourg Forest, Guernsey; s Governor 6th des Ruettes (4613, P.S.), d Dahlia Duchess (18707, P.S.), s d Raymond of Blaye Farm (191, P.S.).

H.C.—Ditto, Ditto, fawn and white, **Elfordleigh Polly** (21777), born 21st March, bred by Mrs. Bainbridge, Elfordleigh, Plympton; s Elfordleigh Hammill 2nd (4784), d Polly 9th of Harris Mill (18190), s d Harris Mill Prince (3949).

C.—LT.-COL. F. J. B. WINGFIELD DIGBY, D.S.O., Sherborne Castle, Sherborne, Dorset, fawn and white, **Sherborne Castle Darling** (23220), born 5th October; s Chettle Peter Pan (5043), d Leweston Darling (15559), s d Herriard Governor 3rd (3539).

CLASS 133.—Guernsey Heifer, calved in 1926. [22 entries.]

I. (£10.)—Sir ERIC HAMBRO, K.B.E., Milton Abbey, Blandford, fawn and white, **Milton Lady Cecilia 2nd** (24299), born 19th May; s Dowre Valentin's Honour of Vimeria, d Hayes Lady Cecelia 4th, s d Hunquite De Bas Hope.

II. (£5.)—Messrs. C. NORMAN, Moor Place, Much Hadham, Herts, fawn and white, **Hadham Moonshine**, born 25th May; s Honeymoon Prince of Hadham (5537), d Hadham Paige 2nd (19159), s d Dowre Star of Honeymoon (3909).

III. (£2.)—MRS. EVELYN RICH, Wretham Hall, Thetford, fawn and white, **Silverstead Lady Richmond**, born 29th August; s Hindhead Governor (4842), d Morland Lady Richmond (16788), s d Slogan's Climax (4035).

R.—W. DUNKELS, Fernhill Park, Windsor Forest, Berks, fawn and white, **Fernhill Polly** (24912), born 27th May; s Star 2nd of Zimiera (5650), d Hindhead Polly 4th (16602), s d Lynchmere Lord Roberts 15th (3982).

Prizes awarded to Guernsey Cattle.

V.H.C.—EDWARD CHRISTIAN, Otterbourne House, near Winchester, Hants, fawn and white, **Otterbourne May Rose** (23825), born 17th January ; s Prince 2nd of the Simons (5618), d Valerie 2nd of Caches Fairy (21021), s d Baines Victor 2nd (4472).

H.C.—Lt.-Colonel F. J. B. WINGFIELD DIGBY, D.S.O., Sherborne Castle, Sherborne, Dorset, fawn and white, **Sherborne Castle Hettie Victoria** (24764), born 28th July ; s Donnington Victor 7th, d Donnington Hettie 40th, s d Donnington Victor 5th.—Mrs. HOWARD PALMER, Heathlands, Wokingham, Berks, fawn and white, **Murrell Dorothy**, born 5th May ; s Downs Rose Lad 3rd (5489), d Murrell Daisy (20299), s d Nelly's Fancy (4886).

C.—Misses HARGREAVES, Nazeing Park, Essex, fawn and white, **Nazeing Snowdrop 2nd**, born 26th June ; s Copped Hall Pioneer, d Hadham Snowdrop 3rd, s d Downe Star of Honeymoon.—LORD POLTIMORE, Court Hall, North Molton, N. Devon, fawn and white, **Poltimore Lenore** (24357), born 27th May ; s Pearl's Majestic (3999), d Lenore of Godaine (16701), s d Hunguets de Bas Winsome (3643, P.S.).

CLASS 134.—*Guernsey Bull, calved in 1923 or 1924. [13 entries.]*

I. (£10.)—W. ROACH, Trewidden, Penzance, lemon, **Poltimore Trojan** (5515), born 14th June, 1924, bred by Lord Poltimore, Court Hall, N. Molton, Devon ; s Pearl's Majestic (3999), d Trefoil of Diamond Farm (14808).

II. (£5.)—E. G. MACANDREW, Pallinghurst, Baynards, Horsham, fawn and white, **Monarch 2nd of Beaulieu** (6484), born 31st October, 1923, bred by J. J. Gavet, Beaulieu, St. Peter's, Guernsey ; s Yvonne's Honour, d Buttercup of Beaulieu.

III. (£2.)—A CHESTER BEATTY, Calchill Park, Little Chart, Ashford, Kent, fawn and white, **Hindhead Governor 2nd** (5038), born 28th May, 1923, bred by J. B. Body, Hindhead Court, Hindhead, Surrey ; s Governor 4th des Ruettes (3718), d Lynchmere Rosy 2nd (14575), s d Robert's Boy's Sequel (2496).

R.—EDWARD CHRISTIAN, Otterbourne House, near Winchester, Hants, fawn and white, **Prince 2nd of the Simons** (5618), born 13th November, 1923, bred by J. B. Fostevin, Leo Simons, Fosteval, Guernsey ; s May Rose Lad of the Spurs (4575), d Beauty 4th of the Simons (14762), s d Polly's Pride (2974).

V.H.C.—Mrs. HOWARD PALMER, Heathlands, Wokingham, Berks, fawn and white, **Downe Rose Lad 3rd** (5489), born 10th June, 1924, bred by D. E. Haldeman, Hayes Street Farm, Hayes, Kent ; s Rose Lad of Goodnestone (3163), d Downe Pearl (14283), s d Gay Boy 6th of Myrtle Place (3518).

H.C.—A CHESTER BEATTY, fawn and white, **Calchill Nulli Secundus** (5302), born 27th November, 1923 ; s Sequel's Slogan (4933), d Golden Queen of Goodnestone (12085), s d Golden Casket 3rd (2586).

C.—Commander COSMO DOUGLAS, R.N., Hazelby, Newbury, fawn and white, **Hindhead Robert 4th**, born 20th May, 1924, bred by J. B. Body, Hindhead Court, Hindhead, Surrey ; s Lynchmere Lord Roberts 15th (3982), d Lynchmere Rosy (13731), s d Sequels Delight 2nd (3403).

CLASS 135.—Guernsey Bull, calved in 1925. [6 entries.]

I. (£10.)—W. DUNKELS, Fernhill Park, Windsor Forest, Berks, fawn and little white, **Hindhead Robert 6th** (5847), born 12th April, bred by J. B. Body, Hindhead, Surrey; s Lynchmere Lord Roberts 15th (3982), d Polly of the Isles of Goodnestone 3rd (14671), s d Rose Lad of Goodnestone (3163).

II. (£5.)—MRS. J. SUTCLIFFE PYMAN, Norsebury, Sutton Scotney, Hants, fawn and little white, **Beau of Goodnestone** (6113, H.B.), born 10th October, bred by Lord Fitzwalter, Goodnestone Park, Canterbury, Kent; s Hindhead Governor (4824 H.B.), d Butterwort of Goodnestone 4th (13317 H.B.), s d Rose Lad of Goodnestone (3163 H.B.).

III. (£2.) Sir ERIC HAMBRO, K.B.E., Milton Abbey, Blandford, Dorset, fawn and white, **Ivy's Pride of Milton** (6164), born 5th October; s Downe Valentine's Honour of Vimiera (3913), d Hays Ivy (17836 A.R.), s d May Boy of Beaulieu (4300).

R.—LORD POLTIMORE, Court Hall, North Molton, N. Devon, fawn and white, **Poltimore Talisman** (5919), born 26th May; s Pearl's Majestic (3999), d Trefoil of Diamond Farm (14808), s d Hunguets de Bas Winsome (3643 P.S.).

V.H.C.—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, S. Devon, fawn and white, **Elfordleigh Hammill 3rd**, born 18th January; s Elfordleigh Hammill 2nd, d Trequean Maggie 2nd, s d Godolphin Arthur.

H.C.—MRS. VERNON HILL, Woodspring Priory, Weston-super-Mare, fawn and white, **Swallowcliff President's Lad**, born 24th June; s President 3rd of Vimiera, d Ranunculus of Goodnestone 5th, s d Rose Lad of Goodnestone.

CLASS 136.—Guernsey Bull, calved in 1926. [7 entries.]

I. (£10.)—LORD POLTIMORE, Court Hall, North Molton, N. Devon, fawn and white, **Poltimore Royal Fancy** (6236), born 25th January; s Royal of Beaulieu (4922), d Lily's Fancy of Primrose Farm (19233), s d Queen's Fancy (4913).

II. (£5.)—W. ROACH, Trewidden, Penzance, lemon, **Trewidden Marksman** (6239), born 23rd January; s Trewidden Magnet (4357), d Cornish Prudence (14190).

III. (£2.)—MRS. VERNON HILL, Woodspring Priory, Weston-super-Mare, fawn and white, **Swallowcliff President's Lad 2nd**, born 13th May; s President 3rd of Vimiera, d Ranunculus of Goodnestone 5th, s d Rose Lad of Goodnestone.

R.—W. DUNKELS, Fernhill Park, Windsor Forest, Berks, fawn and white, **Fernhill Rose Lad**, born 26th June; s Rose Lad of Goodnestone (3163), d Downe Fleur of Vimiera (12694), s d Valentines Honour of the Parsee (3826 P.S.).

V.H.C.—LORD POLTIMORE, fawn and white, **Poltimore Trojan 2nd** (6479), born 28th July; s Poltimore Trojan (5515), d Poltimore Maisie (19238), s d Royal of Beaulieu (4922).

H.C.—VISCOUNT LASCELLES, K.G., Goldsborough Hall, Knaresborough, fawn and white, **Goldsborough Princeling 2nd** (6681), born 1st April; s Goldsborough Golden Prince, d Nellie Lubin's Sequel 4th.

C.—Lt.-Col. F. J. B. WINGFIELD DIGBY, D.S.O., Sherborne Castle, Sherborne, Dorset, brown and white, **Hindhead Robert 7th** (6230), born 28th January, bred by J. B. Body, Hindhead; s Lynchmere Lord Robert's 15th (3982), d Lynchmere Rosy of Mauxmarquis (12215), s d Clara's Pearl King (2716).

KERRY.

(£15 of the Prizes in the Kerry Classes and the Challenge Cup were given by the British Kerry Cattle Society).

CLASS 137.—*Kerry Cow or Heifer, in-Milk, calved on or before August 31st, 1924.* [4 entries.]

I. (£10) and Challenge Cup*—**ERNEST PHILLIPS FOQUETT SUTTON**, Sidmouth Grange, Earley, Bucks, **Gort Primrose 11th** (1959), born 24th January, 1916, bred by R. W. Rattray, Ireland; s Gort Prince 2nd (718), d Gort Primrose 8th (3855) s d Gort Peter (688). (Last calf 7th May, 1927).

II. (£5.)—Ditto, ditto, **Hattingley Hallibut**, (2612). (Last calf 26th August, 1926).

III. (£2.)—**LADY FITZGERALD**, Buckland House, Faringdon, Berks, **Buckland Clarionette** (4046), born 12th November, 1923; s Buckland Viking (470), d Minley Clara (2072), s d Minley Major (325). (Last calf 2nd March, 1927).

CLASS 138.—*Kerry Heifer, not in-Milk, calved between August 31st, 1924, and September 1st, 1925.* [4 entries.]

I. (£10.)—**LADY FITZGERALD**, Buckland House, Faringdon, Berks, **Buckland Hopeful**, born 14th June, 1925; s Valencia Earnest (699), d Minley Cherry (2439), s d Minley Mavis (362).

II. (£5.)—Ditto, ditto, **Buckland Plum**, born 11th June, 1925; s Buckland Thor (547), d Buckland Banquet (2856), s d Valencia Royal Chief (462).

III. (£2.)—**MRS. S. FREELAND**, Manor House, Cheselbourne, Dorchester, **Cheselbourne Patricia**, born 19th August, 1925; s Dur Demon (640), d Cheselbourne Primrose (3829), s d Dur Dudley (555).

H.C.—**ERNEST PHILLIPS FOQUETT SUTTON**, Sidmouth Grange, Earley, Berks, **Kildmore Crocus** (3920), born 12th July, 1925; s Hattingley Bartholomew (649), d Elmhurst Bride (3370), s d Primrose Watersheen (446).

CLASS 139.—*Kerry Bull, calved on or before August 31st, 1925.* [1 entry.]

I. (£10) and Reserve for Challenge Cup*—**MRS. S. FREELAND**, Manor House, Cheselbourne, Dorchester, **Valencia Minstrel** (667), born 8th November, 1924, bred by Kerry Estates, Ltd., The Warren House, Stanmore, Middlesex; s Valencia Perry (616), d Valencia Moya (3234), s d Valencia Chieftain (421).

CLASS 140.—*Kerry Bull, calved between August 31st, 1925, and September 1st, 1926.* [2 entries.]

I. (£10.)—**LADY FITZGERALD**, Buckland House, Faringdon, Berks, **Buckland Black Cherry**, born 15th June, 1926; s Raven of Carton (661), d Minley Cherry (2439), s d Minley Mair (362).

II. (£5.)—**ERNEST PHILLIPS FOQUETT SUTTON**, Sidmouth Grange, Earley, Berks, **Lynford Edward** (525), born 26th November, 1925, bred by the County Breeding Estates, Ltd., Lynford Munford, Brandon, Norfolk; s Southwater Edward (568), d Southwater Barbara (3964), s d Valencia Linksman (496).

*The "Fitzgerald" Perpetual Silver Challenge Cup, value £10 10s. for the best animal exhibited in the Kerry Classes.

DEXTER.

CLASS 141.—*Dexter Cow or Heifer, in-Milk, calved in or before 1924.*
[6 entries.]

I. (£10.)—THEO. A. STEPHENS, Frensham Manor, near Farnham, Surrey, black, **Hookstile Lady Macbeth** (2959); s Sumnerhill George (685), d Gamma (2108), s d Cowbridge General (385). (Last calf 21st February, 1927).

II. (£5.)—Miss DORA BOX, Aston Magna, Moreton-in-Marsh, black, **Wightwick Dot**, born 26th April, 1923; s Oakridge Pat, d Wightwick Daisy.

III. (£2.)—MRS. CONSTANCE MARY LINS CALVERT, Banwell Castle, Banwell, Som., **Brentmoor Sunset** (2859), born 17th November, 1920, bred by Mrs. Grace, Silver Beach, Herne Bay; s Hever Sonny (666), d Fillongley Fragment (2424), s d General Manager (532). (Last calf 18th November, 1926).

R.—Ditto, ditto, red, **Ladybird** (3166), born 4th March, 1920, bred by Rev. W. W. Joyce, Charles Rectory, Charles, Devon; s Charlemagne (604), d Tortoiseshell (2442).

H.C.—Ditto, ditto, red, **Turtle Dove**, (3367), born 5th April, 1919, bred by Rev. W. W. Joyce, Charles Rectory, Charles, Devon; s Charlemagne (604), d Tortoiseshell (2442). (Last calf 13th January, 1927).

CLASS 142.—*Dexter Heifer, calved in 1925 or 1926.* [12 entries.]

I. (£10) and Reserve for Special*—Lt.-Col. W. O. GIBBS, Home Farm, Barrow Gurney, black, **Barrow Dora 12th**, born 30th November, 1925; s Pugnani (756), d Barrow Dora 2nd (2573 Vol. 18, p. 41), s d Oakridge Marston Jack (512).

II. (£5.)—Ditto, ditto, **Barrow Biscuit 3rd**, born 6th March, 1925; s Byford Banner (697), d Biscuit (F.S. 1980).

III. (£2.)—THEO. A. STEPHENS, Frensham Manor, near Farnham, Surrey, black, **Hookstile Gortina**, born 2nd April, 1927; s Grinstead Charlie (836), d Gort Daisy 5th (2495), s d Gort Tony (548).

R.—MRS. HOWARD PALMER, Heathlands, Wokingham, Berks, black, **Brokenhurst Peach Blossom 5th**, born 22nd April, 1925, bred by Lady Kathleen Hare, Brokenhurst Park, Brockenhurst, Hants; s Oakridge Budget (750), d Peach Blossom of Claragh (2535), s d Gort Ned 5th (607).

V.H.C.—Miss DORA BOX, Aston Magna, Moreton-in-Marsh, black, **Wightwick Girlie 3rd**, born 31st March, 1925; s Grinstead Dove, d Wightwick Girlie. (Last calf 9th December, 1926).

H.C.—HENRY FISHER EARL, Biddenden, Kent, black, **Wealden Belle**, born 3rd April, 1925; s Hever Sonny (666), d Grinstead Isobel (2942), s d Braishfield Patrick (599). Last calf April, 1927). Mrs. BRIGHTRIC GEE, Chew Magna, near Bristol, black, **Chew Fanny**, born 6th June, 1926; s Pugnani, d Woodleigh Pansy, s d Quenmore Quest.

*Given by the Dexter Cattle Society, the Devonshire Challenge Cup, for the best Animal in the Dexter Classes bred by Exhibitor, and entered in or eligible for the Dexter Herd Book. The Cup to be won by the same Exhibitor with different animals three years in succession before becoming his absolute property.

C.—MRS. CONSTANCE MARY LINS CALVERT, Banwell Castle, Banwell, Som., black, **Banwell Sal**, born 24th June, 1926 ; s Wightwick Paul (864), d Attington Sal (Vol. 27 D.H.B.), s d Speldhurst Bellows (803).

CLASS 143.—*Dexter Bull, calved before 1926.* [7 entries.]

I. (£10).—MRS. T. H. PEYTON, Colomendy, Mold, North Wales, black, **Grinstead Watersprit**, born 15th August, 1924, bred by Lady Loder, Lenordslea, Horsham ; s Brokenhurst Penny 2nd (694), d Grinstead Watercress (2774), s d Hever Tim (636).

II. (£5).—MRS. HOWARD PALMER, Heathlands, Wokingham, Perks, black, **Pontargran Patrick** (891), born 2nd March, 1924, bred by Edward Davis, Oaklands, Brecon ; s Pontargran Rifleman (753), d Pontargran Patti (2795), s d Brokenhurst Coy Boy (539).

III. (£2).—MRS. CONSTANCE MARY LINS CALVERT, Banwell Castle, Banwell, Som., black, **Brentmoor Brachen** (874), born 22nd March, 1925, bred by W. A. Pritchard, Brentmoor, Brent, South Devon ; s Don Carlo (698), d Midnight (2990), s d Hever Sonny (666).

R.—MRS. LEATHAM, The Manor, Bagendon, Cirencester, black, **Bagendon Emblem**, born 23rd March, 1923 ; s Oakridge Black Jack, d Bagendon Emerald 2nd, s d Bagendon Paving Guest.

V.H.C.—THEO. A. STEPHENS, Frensham Manor, near Farnham, Surrey, black, **Hookstile Brutus** (886), born 16th August, 1923 ; s Hever Rex (741), d Pearl of Hookstile (3007).

(Given by the Dexter Cattle Society).

CLASS 144.—*Dexter Bull, calved in 1926, whose sire and dam were entered in the English Dexter or Royal Dublin Society's Herd Book.* [6 entries.]

I. (£10) and Special *.—LT.-COLONEL W. O. GIBBS, Home Farm, Barrow Gurney, Somerset, red, **Barrow Donald, 2nd**, born 6th August ; s Grinstead Wilfred (929), d Barrow Dora 5th (3053, Vol. 23, p. 179), s d Barrow Beau 3rd (622).

II. (£3).—THEO. A. STEPHENS, Frensham Manor, near Farnham, Surrey, black, **Hookstile Mark Antony**, born 4th May ; s Hookstile Brutus (886), d Hookstile Katherine (3641), s d Quernmore Hookstile (800).

III. (£2).—LT.-COLONEL W. O. GIBBS, black, **Barrow Donald**, born 26th July ; s Grinstead Wilfred (929), d Barrow Dora 8th, s d Byford Banner (697).

R.—MRS. CONSTANCE MARY LINS CALVERT, Banwell Castle, Banwell, Somerset, black, **Banwell**, born 14th October ; s Wightwick Paul (864), d Frensham Fairy (3449), s d Hookstile Helmet (843).

*Given by the Dexter Cattle Society, the Devonshire Challenge Cup, for the best animal in the Dexter Classes bred by Exhibitor, and entered in or eligible for the Dexter Herd Book. The Cup to be won by the same Exhibitor with different animals three years in succession before becoming his absolute property.

MILK TEST.

CLASS 145.—*Cow, in-Milk, of any breed or cross, under 950lbs. live weight, yielding the largest quantity of milk, of normal character, containing at each time of milking not less than 3 per cent. fat, the period of lactation being taken into consideration.* [13 entries.]

I. (£10.) MRS. MANSEL-JONES, Bossington House, Stockbridge, Hants, whole Jersey, **Miss of Brook Farm**, born 1st November, 1920, bred by H. L. Palmer, St. Martin's, Jersey; s Sybil's Oxford Majesty (13769), d Park Farm Miss, s d Financial Raleigh Sultan. (Last calf 15th February, 1927).

II. (£5.) ARTHUR WILLIAM HUNTINGTON, Wellesbourne House, Warwick, whole Jersey, **Marriette's Violet**, born 23rd July, 1917; s Lady's Sabina, d Violette's Laranga 3rd, s d Violette's Aurelius. (Last calf 1st April, 1927).

III. (£2.) MRS. EDGAR WATTS, Eastwood Park, Falfield, Glos., broken, grey fawn Jersey, **Galen** (1896), born 4th October, 1921, bred by P. J. Michel, St. Peter's, Jersey, C.I.; s Xenia's Oxford King (14174 P.S.H.C.), d Ranere (22508 P.S.C.), s d Spotless Noble (11551 P.S.H.C.). (Last calf 13th January, 1927).

R.—W. DUNKELS, Fernhill Park, Windsor Forest, Berks, dark fawn and white Guernsey, **Fernhill Rose** (18813), born 8th August, 1923; s Murrell Desmond (4263), d Lynchmere Rose of Kent 5th, s d Prince of Vimiera. (Last calf 5th February, 1927).

H.C.—GROSVENOR BERRY, Mount-Bures, Bures, Suffolk, whole Jersey, **Goddington Ella 1st**, born 9th November, 1923, bred by A. Miller-Hallett; s Goddington Fern's Oxford (14627), d Goddington Ella. (Last calf 17th February, 1927).

C.—HENRY FISHER EARL, Biddenden, Kent, black Dexter, **Charlewood**, born 1st October, 1918, bred by Rev. W. W. Joyce, South Molton, Devon; s Black Jack (579), d Marion (2435). (Last calf 24th December, 1926).—**ARTHUR WM. HUNTINGTON**, Wellesbourne House, Warwick, whole, **Milkmaid**, born 4th May, 1921, bred by Capt. E. L. Hughes; s Derlament Bay Boy; d Morst Star, s d Flora's Star. (Last calf 15th February, 1927).—**A. CHESTER BEATTY**, Calehill Park, Little Chart, Ashford, Kent, fawn and white Guernsey, **Calehill Dewdrop** (20201), born 14th March,; s Lynchmere Lord Roberts 13th (3748), d Engen Dewdrop 6th (15329), s d Engen Gay Boy 2nd (3696). (Last calf 15th October, 1926).

CLASS 146.—*Cow, in-Milk, of any breed or cross, 950lbs. live weight or over, yielding the largest quantity of milk, of normal character, containing at each time of milking not less than 3 per cent. fat, the period of lactation being taken into consideration.* [28 entries.]

I. (£10.)—MRS. EVELYN, Wotton House, Dorking, n. wh. Jersey, **Fairlawne Hussey**, born 8th August, 1916, bred by W. M. Cazalet, Fairlawne, Tonbridge, s Sir Toby (12154), d Hussey 13th (Impt.), s d MacDougal (9333). (Last calf 12th January, 1927).

II. (£5.) W. WHITE & SONS, Taunton, Somerset, fawn and white Guernsey, **Elfordleigh Beauty** (19828), born 13th November, 1923, bred by Mrs R. C. Bainbridge, Elfordleigh, Plympton, Devon; s Hammill of Marazion (3334), d Durrington Beauty 12721), s d Rose King (2843). (Last calf 3rd December, 1926).

III. (£2.) GEORGE CROSS, Smarts Hill, Penshurst, Kent, whole Jersey, **Doreen**, born 4th March, 1923, bred by --- Ruggles Buse, Spains Hall, Braintree; s Park Keeper, d Lady Daphne, s d Minorca Jolly Sultan. (Last calf 24th December, 1926).

R.—W. WHITE & SONS, fawn and white Guernsey, **Tregothnan Thrush** 17097), born 1st August, 1921, bred by Viscount Falmouth, Tregothnan, Truro; s Nicolle's Fleurie Sequel (3378), d Tregothnan Linnet (9221), s d Loyal 3rd of the Gree (1855). (Last calf 11th March, 1927).

H.C.—Major J.A. MORRISON, D.S.O., Basildon Park, Reading, Berks, Red Poll, **Basildon Rosalind 2nd** (29584), born 1st November, 1921; s Basildon Orpheus (11557), d Basildon Rosalind (26653), s d Harefield Recruit (10865).—EDWARD CHRISTIAN, Otterbourne House, near Winchester, Hants, fawn and white, **Dene Maid of Wargrave** (14224), born 25th January, 1919, bred by Sir J. Remmant, Bart., Hare Hatch, Twyford, Berks; s Sequel's Victor 2nd (3591), d Lady 97th (8596), s d Goldseeker (1931). (Last calf 3rd January, 1927).

C.—JAMES H. ISMAY, Home Farm, Iwerne Minster, Blandford, roan, Dairy Shorthorn, **Iwerne Diadem 2nd**, born 4th March, 1921, s Kelmescott Conjuror 19th (143185), d Rockley Diadem, s d Oxford Count (109592). (Last calf 26th January, 1927).—CLEMENT EDWARD TORY, Holnest Park, Sherborne, white and brown Ayrshire, **Low Barclay Cinderella 4th** (88334), born 24th December, 1922, bred by W. McCraig; s Low Barclay Drummer Boy (23148), d Low Barclay Cinderella (86397), s d Low Barclay Sir John (11749).—EUSTACE E. PALMER, Prior's Court, Chieveley, Berks, fawn and white Guernsey, **Mawgan Lady Glen 2nd** (13737), born 1st May, 1918, bred by H. & E. Boadin, Skyburriowe, Helston, Cornwall; s Mawgan Punch (3007), d Mawgan Lady Glen (12223), s d Rob Roy 3rd of Bickleigh (2632). (Last calf 8th April, 1927). WILLIAM TURNER, Stone House, Much Marcle, Dymock, Glos., black and white, **Hawthorn Freda** (62334), born 19th September, 1922; s Hawthorn Donald (142107), d Hawthorn Acacia (29060), s d Gorstage (impt.), Keitje's Victor (3939).

SILVER CHALLENGE CUPS.

GIVEN BY THE DEXTER CATTLE SOCIETY.

The "Hare" Challenge Cup, for the Dexter Cow or Heifer obtaining the greatest number of points in the Milk Test Classes. The Cup to become the property of an Exhibitor winning it 3 years in succession or 5 years in all. The Certificate of Award of the Dexter Cattle Society was given to the owner of the winning animal.

I.—HENRY FISHER EARL, Biddenden, Kent, black, **Charlewood**, born 1st October, 1918, bred by Rev. W. W. Joyce, South Moulton, Devon; s Black Jack (579), d Marion (2435). (Last calf 24th December, 1926).

BY THE BRITISH KERRY CATTLE SOCIETY.

The Valencia Perpetual Silver Challenge Cup, value £15 15s., for the Kerry Cow gaining the highest number of points in the Milk Test Classes.

[NOT AWARDED].

SPECIAL PRIZES.

Given by the Royal Jersey Agricultural Society through the English Jersey Cattle Society, for the Jersey Cow obtaining the greatest number of points in the Milk Test Classes.

I. (£10 10s.).—Mrs. MANSEL JONES, Bossington House, Stockbridge, Hants, whole, **Miss of Brook Farm**, born 1st November, 1920, bred by H. L. Palmer, St. Martin's, Jersey; s Sybil's Oxford Majesty (13769), d Park Farm Miss, s d Financial Raleigh Sultan. (Last calf 15th February, 1927).

R.—ARTHUR WM. HUNTINGTON, Wellesbourne House, Warwick, whole, **Marriette's Violet**, born 23rd July, 1917; s Lady's Sabina, d Violette's Laranga 3rd, s d Violette's Aurelius. (Last calf 1st April, 1927).

Offered by the British Friesian Cattle Society to the owner of the Cow awarded the greatest number of points in the Milk Test Classes, provided that such Cow is a British Friesian—£50.

[NOT AWARDED].

BUTTER TEST.

CLASS 147.—*Cow, of any breed or cross, under 950lbs. live weight, obtaining the greatest number of points by the practical test of the separator and churn. [11 entries.]*

I. (£5.).—Mrs. EDGAR WATTS, Eastwood Park, Falfield, Glos., broken grey fawn Jersey, **Galen** (1896), born 4th October, 1921, bred P. J. Michel, St. Peters, Jersey, C.I., s Xenia's Oxford King (14174 P.S.H.C.), d Ranere (22508 P.S.C.), s d Spotless Noble (11551 P.S.H.C.). (Last calf 13th January, 1927).

II. (£3).—Mrs. MANSEL-JONES, Bossington House, Stockbridge, Hants, whole Jersey, **Miss of Brook Farm**, born 1st November, 1920, bred by H.L. Palmer, St. Martin's, Jersey; s Sybil's Oxford Majesty (13769), d Park Farm Miss, s d Financial Raleigh Sultan. (Last calf 15th February, 1927).

III. (£2.).—W. DUNKELS, Fernhill Park, Windsor Forest, Berks, dark fawn and white Guernsey, **Fernhill Rose** (18813), born 8th August, 1923,; s Murrell Desmond (4263), d Lynchmere Rose of Kent 5th, s d Prince of Vimiera. (Last calf 5th February, 1927).

R.—ARTHUR WM. HUNTINGTON, Wellesbourne House, Warwick, whole Jersey, **Marriette's Violet**, born 23rd July, 1917; s Lady's Sabina, d Violette's Laranga 3rd, s d Violette's Aurelius. (Last calf 1st April, 1927).

Certificate of Merit.—GROSVENOR BERRY, Mount-Bures, Bures, Suffolk, whole Jersey, **Goddington Ella 1st**, born 9th November, 1923, bred by A. Miller-Hallett; s Goddington Fern's Oxford (14627), d Goddington Ella. (Last calf 17th February, 1927).—Mrs. EDGAR WATTS, Eastwood Park, Falfield, Glos., whole fawn Jersey, **Verandah's Phyllis** (4186), born 12th August, 1922, bred by J. Le Clezio, St. Peter's, Jersey, C.I.; s. Philidora's Volunteer (14415 P.S.H.C.), d Rectory Verandah (23960 P.S.H.C.), s d Clarencia's Pallas Noble (12879 P.S.C.). (Last calf 4th January, 1927).—GROSVENOR BERRY, nearly whole, **Winter Dinah**, born 14th December, 1927, s Nimrod, d New Years Dinah, s d Lord Blackberry. (Last calf 23rd March, 1927).

CLASS 148.—*Cow, of any breed or cross, 950lbs. live weight and over, obtaining the greatest number of points by the practical test of the separator and churn.* [22 entries.]

I. (£5) and Certificate of Merit. Mrs. EVELYN, Wotton House, Dorking, n. wh. Jersey, **Fairlawne Hussy**, born 8th August, 1916, bred by W. M. Cazalet Fairlawne, Tonbridge; s Sir Toby (12154), d Hussy 13th (impt.), s d Mac Dougal (9333). (Last calf 12th January, 1927).

II. (£3.) W. WHITE & SONS, Taunton, Somerset, fawn and white, Guernsey, **Elfordleigh Beauty** (19828), born 13th November, 1923, bred by Mrs. R.C. Bainbridge, Elfordleigh, Plympton, Devon; s Hammill of Marazion (3334), d Durrington Beauty (12721), s d Rose King (2843). (Last calf 3rd December, 1926).

III. (£2.)—Sir ERIC HAMBRO, K.B.E., Milton Abbey, Blandford, Dorset, fawn and white Guernsey, **Clatford Meadow Sweet 12th** (15163), born 2nd August, 1920, bred by —, Forster, Clatford Mills, Andover, Hants; s Glanville Bullet (3480), d Clatford Meadow Sweet 6th (11191), s d Clatford Jewel (2717). (Last calf 1st January, 1927).

R.—HARRY JAMES POPE DAVIES, Pixley Court, Ledbury, Herefordshire, British Friesian, **Sudbourne Dairymaid 4th**, born 6th June, 1921, bred by Olympia Agricultural Co., Ltd.; s Terling (impt.) Vic Bertus (4541), d Sudbourne Dairymaid (42132), s d Golf (impt. Botermign. (Last calf 27th February, 1926).

H.C.—ROBERT N. TORY, Anderson, Blandford, roan Dairy Shorthorn, **Fulmer Melody** (25409) (Vol. 68, p. 885), born 22nd March, 1921, bred by Major T. W. Hay, Fulmer Court, Bucks; s Leam Commissioner (149958), d Preshute Melody, s d Knowsley Precentor (126368).—W. WHITE & SONS, fawn and white Guernsey, **Tregothnan Thrush** (17097), born 1st August, 1921, bred by Viscount Falmouth, Tregothnan, Truro; s Nicolle's Fleurie Sequel (3378), d Tregothnan Linnet (9221), s d Loyal 3rd of the Gree (1855). (Last calf 11th March, 1927). EDWARD CHRISTIAN, Otterbourne House, near Winchester, Hants, fawn and white, **Dene Maid of Wargrave** (14224), born 25th January, 1919, bred by Sir J. Remmant, Bart., Hare Hatch, Twyford, Berks; s Sequel's Victor 2nd (3591), d Lady 97th (8596), s d Goldseeker (1931). (Last calf 3rd January, 1927).

Certificate of Merit.—GEORGE CROSS, Smarts Hill, Penshurst, Kent, whole, Jersey, **Doreen**, born 4th March, 1923, bred by —, Ruggles Buse, Spains Hall, Braintree; s Park Keeper, d Lady Daphne, s d Minorca Jolly Sultan. (Last calf 24th December, 1926).

SPECIAL PRIZES.

GIVEN BY THE RESPECTIVE BREED SOCIETIES.

For the South Devon Cow obtaining the best results—£5 5s.

[NOT AWARDED].

For the three Jersey Cows obtaining the best results and not less than 42 points.

I. (Gold Medal.)—Mrs. EDGAR WATTS, Eastwood Park, Falfield, Glos., broken, grey fawn, **Galen** (1896), born 4th October, 1921, bred by P. J. Michel, St. Peter's, Jersey, C.I.; s Xenia's Oxford King (14174 P.S.H.C.), d Ranere (22508 P.S.C.), s d Spotless Noble (11551 P.S.H.C.). (Last calf 13th January, 1927).

II. (Silver Medal.)—Mrs. MANSEL-JONES, Bossington House, Stockbridge, Hants, whole, **Miss of Brook Farm**, born 1st November, 1920, bred by H. L. Palmer, St. Martin's, Jersey; s Sybil's Oxford Majesty (13769), d Park Farm Miss, s d Financial Raleigh Sultan. (Last calf 15th February, 1927).

III. (Bronze Medal.)—ARTHUR WM. HUNTINGTON, Wellesbourne House, Warwick, whole, **Marquette's Violet**, born 23rd July, 1917; s Lady's Sabina, d Violette's Laranga 3rd, s d Violette's Aurelius. (Last calf 1st April, 1927).

For the Guernsey Cow obtaining the best results.

I. (£5.)—W. DUNKELS, Fernhill Park, Windsor Forest, Berks, dark fawn and white, **Fernhill Rose** (18813), born 8th August, 1923; s Murrell Desmond (4263), d Lynchemere Rose of Kent 5th, s d Prince of Vimiera. (Last calf 5th February, 1927).

MILK RECORDED.

(The Prizes in this Class were given by the Bath Local Committee, and were open only to Residents within a radius of 30 miles of the Guildhall, Bath).

CLASS 149.—*Milk Recorded Cow, of any breed or cross, that had in her last lactation period yielded 8,000lbs. of Milk and has calved, or is due to calve again, within 13 months of her last calving.* [1 entry.]

I. (£10.)—A. H. W. OSBORNE & SONS, Branch Farm, Mells, Frome, Somerset, roan, **Prettymaid 2nd**, born 1st June, 1921; d Prettymaid (B.C. 709).

SHEEP.

DEVON LONGWOOLLED.

(£10 towards the Prizes in these Classes were given by the Devon Longwoolled Sheep Breeders' Society).

CLASS 150.—*Devon Longwoolled Shearling Ram.* [5 entries.]

- I. (£10.)—FREDERICK WHITE, Torweston, Williton.
- II. (£5.)—FREDERICK WHITE.
- III. (£2.)—J. H. TRICK, Fordton Barton, Crediton.
- R. THOMAS JOHN PEARCEY, Peadhill, Tiverton, Devon.

CLASS 151.—*Pair of Devon Longwoolled Ram Lambs, dropped in 1927*
[4 entries.]

- I. (£10.)—THOMAS JOHN PEARCEY, Peadhill, Tiverton, Devon.
- II. (£5.)—FREDERICK WHITE, Torweston, Williton.
- III. (£2.)—FREDERICK WHITE.
- R.—THOMAS JOHN PEARCEY.

CLASS 152.—*Pair of Devon Longwoolled Shearling Ewes.* [4 entries.]

- I. (£10.)—FREDERICK WHITE, Torweston, Williton.
- II. (£5.)—FREDERICK WHITE.
- III. (£2.)—J. H. TRICK, Fordton Barton, Crediton, Devon.
- R.—THOMAS JOHN PEARCEY, Peadhill, Tiverton, Devon.

KENT OR ROMNEY MARSH.

(£17 towards the Prizes in these Classes were given by the Kent or Romney Marsh Sheep Breeders' Association).

CLASS 153.—*Kent or Romney Marsh Shearling Ram.* [5 entries.]

- I. (£10.)—JOHN EGERTON QUESTED, The Firs, Cheriton, Kent.
- II. (£5.)—JOHN EGERTON QUESTED.
- III. (£2.)—JOHN EGERTON QUESTED.
- R.—EARL OF GUILFORD, Waldershare Park, near Dover.

CLASS 154.—*Pair of Kent or Romney Marsh Ram Lambs, dropped in
1927.* [5 entries.]

- I. (£10.)—JOHN EGERTON QUESTED, The Firs, Cheriton, Kent.
- II. (£5.)—JOHN EGERTON QUESTED.

*Prizes awarded to Kent or Romney Marsh and
Southdown Sheep.* lxi

III. (£2.) JOHN EGERTON QUESTED.

R. EARL OF GUILFORD, Waldershare Park, near Dover.

C.—Right Hon. LORD ST. JOHN OF BLETSO, Melchbourne Park, Beds.

CLASS 155.—*Pair of Kent or Romney Marsh Shearling Ewes.* [4 entries.]

I. (£10.) JOHN EGERTON QUESTED, The Firs, Cheriton, Kent.

II. (£5.) JOHN EGERTON QUESTED.

III. (£2.) JOHN EGERTON QUESTED.

R.—EARL OF GUILFORD, Waldershare Park, near Dover.

SOUTHDOWN.

(£17 towards the Prizes in these Classes were given by the Southdown Sheep Society).

CLASS 156.—*Southdown Shearling Ram.* [11 entries.]

I. (£10) and Special*—LADY LUDLOW, Luton Hoo, Luton, Beds.

II. (£5) and Reserve for Special*—LADY LUDLOW.

III. (£2.)—J. PIERPONT MORGAN, Estate Office, Wall Hall, Watford.

R. SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate, Surrey.

H.C. LADY FITZGERALD, Buckland, Faringdon, Berks.

C.—LADY FITZGERALD.

CLASS 157.—*Southdown Pair of Ram Lambs, dropped in 1927.* [5 entries.]

I. (£10.)—J. PIERPONT MORGAN, Estate Office, Wall Hall, Watford.

II. (£5.)—LADY FITZGERALD, Buckland, Faringdon, Berks.

III. (£2.)—LADY LUDLOW, Luton Hoo, Luton, Beds.

CLASS 158.—*Pair of Southdown Shearling Ewes.* [6 entries.]

I. (£10) and Special†—LADY LUDLOW, Luton Hoo, Luton, Beds.

II. (£5) and Reserve for Special †—J. PIERPONT MORGAN, Estate Office, Wall Hall, Watford.

III. (£2.)—SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate, Surrey.

R.—Hon. Mrs. BRUCE WARD, Godinton, Ashford, Kent.

C.—HENRY SPENCE HORNE, Aldsworth, Emsworth, Hants, bred by Bonham Carter, Buriton, Petersfield, Hants.—JOHN THOBURN MCGAW, St. Leonard Forest, Horsham, Sussex.

SPECIAL PRIZES.

*Given by the Southdown Sheep Society, under Condition 65, subject to there being at least three competitors.—Silver Medal or £1 for the best Ram or Ram Lamb in the Southdown Classes.

†Silver Medal for the best Pen of Ewes.

HAMPSHIRE DOWN.

(£34 towards the Prizes in these Classes and the Champion Prize were given by the Hampshire Down Sheep Breeders' Association).

CLASS 159.—*Hampshire Down Shearling Ram.* [6 entries.]

- I. (£10.)** JAMES GOLDSMITH, Blendworth, Horndean, Cosham, Hants.
- II. (£5.)**—Major and Mrs. JERVOISE, Herriard Park, Basingstoke.
- III. (£2.)**—Major and Mrs. JERVOISE.
- R.**—Major J. A. MORRISON, D.S.O., Basildon Park, Goring, near Reading.
- V.H.C.**—Col. C. W. SOFER WHITBURN, Ampport St. Mary's, Andover, Hants.
- H.C.**—Major J. A. MORRISON, D.S.O.

CLASS 160.—*Hampshire Down Ram Lamb, dropped in 1927.* [7 entries.]

- I. (£10.)**—JAMES GOLDSMITH, Blendworth, Horndean, Cosham, Hants.
- II. (£5.)**—Major and Mrs. JERVOISE, Herriard Park, Basingstoke.
- III. (£2.)**—Col. C. W. SOFER WHITBURN, Ampport St. Mary's, Andover, Hants.
- R.**—G. CAINES WATERS, Burcombe Manor, near Salisbury.
- V.H.C.**—Major J. A. MORRISON, D.S.O., Basildon Park, Goring, near Reading.
- C.**—Major and Mrs. JERVOISE.—Major J. A. MORRISON, D.S.O.

CLASS 161.—*Pair of Hampshire Down Ram Lambs, dropped in 1927.* [5 entries.]

- I. (£10) and Reserve for Champion***—JAMES GOLDSMITH, Blendworth, Horndean, Cosham, Hants.
- II. (£5.)**—G. CAINES WATERS, Burcombe Manor, near Salisbury.
- III. (£2.)**—Col. C. W. SOFER WHITBURN, Ampport St. Mary's, Andover, Hants.
- R.**—Major and Mrs. JERVOISE, Herriard Park, Basingstoke.
- V.H.C.**—Major J. A. MORRISON, D.S.O., Basildon Park, Goring, near Reading.

CLASS 162.—*Pair of Hampshire Down Shearling Ewes.* [2 entries.]

- I. (£10.)**—Major J. A. MORRISON, D.S.O., Basildon Park, Goring, near Reading, Berks.
- II. (£5.)**—Major J. A. MORRISON.

CLASS 163.—*Pen of 3 Hampshire Down Ewe Lambs, dropped in 1927.* [5 entries.]

- I. (£10) and Champion (£5)***—Major and Mrs. JERVOISE, Herriard Park, Basingstoke.
- II. (£5.)**—G. CAINES WATERS, Burcombe Manor, near Salisbury.
- III. (£2.)**—Col. C. W. SOFER WHITBURN, Ampport St. Mary's, Andover, Hants.
- R.**—Major J. A. MORRISON, D.S.O., Basildon Park, Goring, near Reading, Berks.
- V.H.C.**—JAMES GOLDSMITH, Blendworth, Horndean, Cosham, Hants.

*Champion Prize for the best Ram, Ram Lamb, Pair or Pen in the Hampshire Down Classes.

OXFORD DOWN.

CLASS 164.—*Oxford Down Shearling Ram.* [4 entries.]

I. (£10.)—HUGH WILLIAM STILGOE, The Grounds, Adderbury, near Banbury, Oxon.

II. (£5.)—HUGH WILLIAM STILGOE.

III. (£2.)—Capt. E. G. SPENCER CHURCHILL, M.C., Northwick Park, Blockley, Wores.

CLASS 165.—*Pair of Oxford Down Ram Lambs, dropped in 1927.*
[5 entries.]

I. (£10.)—W. F. G. WATTS, Elsfield, Oxford.

II. (£5.)—HUGH WILLIAM STILGOE, The Grounds, Adderbury, near Banbury, Oxon.

III. (£2.)—Major ROBERT FLEETWOOD FULLER, Great Chalfield, Melksham.

R.—EVAN JEFFERIES, Windrush, Burford, Oxon.

CLASS 166.—*Oxford Down Shearling Ewe.* [6 entries.]

I. (£10.)—EVAN JEFFERIES, Windrush, Burford, Oxon.

II. (£5.)—HUGH WILLIAM STILGOE, The Grounds, Adderbury, near Banbury, Oxon.

III. (£2.)—HUGH WILLIAM STILGOE.

R.—EVAN JEFFERIES.

(Given by the Oxford Down Sheep Breeders' Association, and the Prizes were withheld until the Animals awarded the Prizes were registered in the Flock Book).

CLASS 167.—*Pen of two Oxford Down Ewe Lambs, dropped in 1927.*
[5 entries.]

I. (£6.)—W. F. G. WATTS, Elsfield, Oxford.

II. (£3.)—HUGH WILLIAM STILGOE, The Grounds, Adderbury, near Banbury, Oxon.

III. (£1.)—Major ROBERT FLEETWOOD FULLER, Great Chalfield, Melksham.

R.—Capt. E. G. SPENCER CHURCHILL, M.C., Northwick Park, Blockley, Wores.

DORSET HORN.

The Animals entered in Classes 168 and 170 must have been shorn bare in the year of the Show.

(£20 towards the Prizes in these Classes were given by the Dorset Horn Sheep Breeders' Association).

CLASS 168.—*Dorset Horn Shearling Ram.* [2 entries.]

I. (£10.)—REGINALD E. BENNETT, Eastfield Farm, Cheselbourne, Dorchester.

II. (£5.)—REGINALD E. BENNETT.

Ixiv Prizes awarded to Dorset Horn and Dorset Down Sheep.

CLASS 169.—*Pair of Dorset Horn Ram Lambs, dropped after November 1st, 1926.* [1 entry.]

I. (£10.) REGINALD E. BENNETT, Eastfield Farm, Cheselbourne, Dorchester.

CLASS 170.—*Pair of Dorset Horn Shearling Ewes.* [2 entries.]

I. (£10.)—REGINALD E. BENNETT, Eastfield Farm, Cheselbourne, Dorchester.

II. (£5.)—CLEMENT E. TORY, Holnest Park, Sherborne, bred by H. W. Coleman, late of Bagber, Melbourn, St. Andrews.

CLASS 171.—*Pen of three Dorset Horn Ewe Lambs, dropped after November 1st, 1926.* [2 entries.]

I. (£10.)—Major R. C. COLDWELL, Spring Grove, Milverton, Som.

II. (£5.)—Major R. C. COLDWELL.

DORSET DOWN.

(£15 towards the Prizes in these Classes were given by the Dorset Down Sheep Breeders' Association).

CLASS 172.—*Dorset Down Shearling Ram.* [7 entries.]

I. (£10.)—HOOVER BROS., Newburgh Farm, Winfrith, Dorset, bred by Mrs. Lionel de Rothschild, Exbury, Southampton.

II. (£5.)—HOOVER BROS., bred by T. S. Hooper, Newburgh Farm, Winfrith.

III. (£2.)—P. & C. SEWARD, Weston, Petersfield, Hants.

R.—MRS. LIONEL DE ROTHSCHILD, Exbury, Southampton.

V.H.C.—P. & C. SEWARD.

H.C.—ROBERT N. TORY, Anderson, Blandford.

C.—HENRY SPENCE HORNE, Aldsworth, Emsworth, Hants, bred by R. N. Tory, Anderson, Blandford, Dorset.

CLASS 173.—*Pair of Dorset Down Ram Lambs, dropped in 1927.* [8 entries.]

I. (£10.) HOOVER BROS., Newburgh Farm, Winfrith, Dorset, bred by T. S. Hooper, Newburgh Farm, Winfrith, Dorset.

II. (£5.)—P. & C. SEWARD, Weston, Petersfield, Hants.

III. (£2.) MRS. LIONEL DE ROTHSCHILD, Exbury, Southampton.

R.—RANDOLPH TORY, Charisworth Manor, Blandford.

V.H.C.—P. & C. SEWARD.

C.—ROBERT N. TORY, Anderson, Blandford.

CLASS 174.—*Pair of Dorset Down Shearling Ewes.* [4 entries.]

I. (£10.)—MRS. LIONEL DE ROTHSCHILD, Exbury, Southampton.

II. (£5.) HOOVER BROS., Newburgh Farm, Winfrith, Dorset, bred by T. S. Hooper, Newburgh Farm, Winfrith, Dorset.

III. (£2.) ROBERT N. TORY, Anderson, Blandford.

R.—ROBERT N. TORY.

EXMOOR HORN.

(£17 towards the Prizes in these Classes were given by the Exmoor Horn Sheep Breeders' Society).

CLASS 175.—*Exmoor Horn Ram, any age.* [4 entries.]

I. (£10.)—Mrs. LETITIA SHOPPEE, Hollam, Dulverton, Somerset, bred by O. and R. Robins, Lidcott, Brayford, Barnstaple.

II. (£5.)—O. T. and A. F. ROBINS, Lidcott Hall, High Bray, Barnstaple.

III. (£2.)—F. BEADLE, Stowey Farm, Timberscombe, Taunton.

R.—Major R. R. ROTHWELL, Morebath Manor, Morebath, N. Devon.

CLASS 176.—*Pair of Exmoor Horn Ram Lambs, dropped in 1927.*
[3 entries.]

I. (£10.)—F. BEADLE, Stowey Farm, Timberscombe, Taunton.

II. (£5.)—Major R. R. ROTHWELL, Morebath Manor, Morebath, N. Devon.

III. (£2.)—O. T. and A. F. ROBINS, Lidcott Hall, High Bray, Barnstaple.

CLASS 177.—*Pair of Exmoor Horn Shearling Ewes.* [3 entries.]

I. (£10.)—O. T. and A. F. ROBINS, Lidcott Hall, High Bray, Barnstaple.

II. (£5.)—F. BEADLE, Stowey Farm, Timberscombe, Taunton.

III. (£2.)—Major R. R. ROTHWELL, Morebath Manor, Morebath, N. Devon.

SUFFOLK.

(£25 towards the Prizes in these Classes were given by the Suffolk Sheep Society).

CLASS 178.—*Suffolk Shearling Ram.* [6 entries.]

I. (£10) and Champion*—HOLLESLEY BAY LABOUR COLONY, Hollesley, Suffolk.

II. (£5.)—Messrs. CO-OPERATIVE WHOLESALE SOCIETY, LTD., Estate Office, Cherhill, Wilts, bred by Mr. Foster, Trumpington, Cambridgeshire.

III. (£2.)—A. PRESTON JONES, Mickleover House, Derby.

R.—HOLLESLEY BAY LABOUR COLONY.

CLASS 179.—*Pair of Suffolk Ram Lambs, dropped in 1927.* [6 entries.]

I. (£10) and Reserve for Champion*—HOLLESLEY BAY LABOUR COLONY, Hollesley, Suffolk.

II. (£5.)—R. H. FOA, Holywell Park, Wrotham, Kent.

III. (£2.)—A. PRESTON JONES, Mickleover House, Derby.

R.—Messrs. CO-OPERATIVE WHOLESALE SOCIETY, LTD., Estate Office, Cherhill, Wilts.

*Champion Prize given by Sir F. Hervey Bathurst, Bart., D.S.O., a Silver Cup for the best Ram, Pair or Pen, in the Suffolk Classes. The Cup to be won three years in succession before becoming the absolute property of the winner.

CLASS 180.—*Pair of Suffolk Shearling Ewes.* [7 entries.]

I. (£10.)—MESSRS. CO-OPERATIVE WHOLESALE SOCIETY, LTD., Estate Office, Cherhill, Wilts.

II. (£5.)—MESSRS. CO-OPERATIVE WHOLESALE SOCIETY, LTD.

III. (£2.)—A. PRESTON JONES, Mickleover House, Derby.

R.—A. PRESTON JONES.

CLASS 181.—*Pen of three Suffolk Ewe Lambs, dropped in 1927.* [5 entries.]

I. (£10.)—HOLLESLEY BAY LABOUR COLONY, Hollesley, Suffolk.

II. (£5.)—R. H. FOA, Holywell Park, Wrotham, Kent.

III. (£2.)—MESSRS. CO-OPERATIVE WHOLESALE SOCIETY, LTD., Estate Office, Cherhill, Wilts.

R.—A. PRESTON JONES, Mickleover House, Derby.

RYELAND.

(£15 of the Prizes in these Classes were given by the Ryeland Sheep Society).

CLASS 182.—*Ryeland Shearling Ram.* [8 entries.]

I. (£10.)—WALTER WOOLLAND, Baydon Manor, Ramsbury, Wilts, bred by T. L. Martin, Ashe Warren, Overton, Hants.

II. (£5.)—E. W. LANGFORD, LTD., Registered Office, Wye Bridge, Hereford.

III. (£2.)—W. G. BUCHANAN, Manor House Farm, Abergavenny.

R.—WALTER WOOLLAND.

V.H.C.—E. W. LANGFORD, LTD.

CLASS 183.—*Pair of Ryeland Ram Lambs, dropped in 1927.* [4 entries.]

I. (£10.)—W. G. BUCHANAN, Manor House Farm, Abergavenny.

II. (£5.)—WALTER WOOLLAND, Baydon Manor, Ramsbury, Wilts.

III. (£2.)—E. W. LANGFORD, LTD., Registered Office, Wye Bridge, Hereford.

R.—Capt. E. G. SPENCER CHURCHILL, M.C., Northwick Park, Blockley, Worcs.

CLASS 184.—*Pair of Ryeland Shearling Ewes.* [6 entries.]

I. (£10.)—E. W. LANGFORD, LTD., Registered Office, Wye Bridge, Hereford.

II. (£5.)—WALTER WOOLLAND, Baydon Manor, Ramsbury, Wilts, bred by A. E. Booth, Sydmonton, Burghclere, Newbury, Berks.

III. (£2.)—E. W. LANGFORD, LTD.

R.—WALTER WOOLLAND.

V.H.C.—W. G. BUCHANAN, Manor House Farm, Abergavenny.

C.—Capt. E. G. SPENCER CHURCHILL, M.C., Northwick Park, Blockley, Worcs.

KERRY HILL.

(£12 towards the Prizes in these Classes were given by the Kerry Hill (Wales) Flock Book Society.

CLASS 185.—*Kerry Hill Ram, two Shear and upwards.* [5 entries.]

I. (£10.)—Hon. Mrs. SMYTH, Ashton Court, Bristol, **Kerry Topper** (9338), bred by B. Alderson, Glanmeheli.

II. (£5.) Hon. Mrs. SMYTH, **Ashton Cadet** (10846).

III. (£2.)—The MARQUESS OF LONDONDERRY, K.G., P.C., Plas, Machynlleth, Montgomeryshire, **Maesmawr Umpire** (11544), bred by T. E. Kinsey, Maesmawr, Caersws, Montgomeryshire.

R.—Mrs. EDITH TATE, Swinford Lodge, Rugby, **Jamesford Gay Boy** (10291), bred by Pugh & Sons, Jamesford, Monty.

CLASS 186.—*Kerry Hill Shearling Ram.* [7 entries.]

I. (£10) and Champion*—Hon. Mrs. SMYTH, Ashton Court, Bristol, **Ashton Don.**

II. (£5.)—DINAM ESTATES CO. (Mr. David Davies, M.P.), Llandinam, Co. Montgomery, **Gwernygoe Genuine** (Ear Tag No. 165) (Vol. 27).

III. (£2.)—Mrs. E. TATE, Swinford Lodge, Rugby, **Eaton Re-Echo**, bred by The Duke of Westminster, Eaton Hall, Chester.

R.—The MARQUESS OF LONDONDERRY, K.G., P.C., Plas, Machynlleth, Montgomeryshire, **Mount Fflrt Conqueror**, bred by J. S. Hughes, Mount Farm, Knighton.

CLASS 187.—*Pair of Kerry Hill Shearling Ewes.* [8 entries.]

I. (£10) and Reserve for Champion*—CHARLES BATHURST HELE PHIPPS, Chalcot, Westbury, Wiltshire.

II. (£5.)—DINAM ESTATES CO. (Mr. DAVID DAVIES, M.P.), Llandinam, Co. Montgomery.

III. (£2.)—Hon. Mrs. SMYTH, Ashton Court, Bristol.

R.—Mrs. E. TATE, Swinford Lodge, Rugby.

*Champion Prize given by H.R.H. The Prince of Wales, K.G., a Challenge Cup, value £20, for the best Animal exhibited in Class 186 or 187, to be won three times in succession or four times altogether before becoming the property of the Exhibitor.

GOATS.

(£15 towards the Prizes in these Classes were given through the British Goat Society).

CLASS 188.—*Female Goat, in-Milk, any age, British Alpine, Toggenburg or British Toggenburg.* [5 entries.]

I. (£2 10s.)—Miss POPE, Bashley Lodge, New Milton, Hants, Toggenburg, **Playfellow of Bashley** (Q*Q*Q*Q* 6541), born 25th April, 1924; s Herne Bay Thark (4916), d Ch. Playmate of Bashley (Q*Q*Q* 4675), s d Wilful of Westons (4673). (Last kid, 26th March, 1927).

II. (£1 10s.)—Miss C. CHAMBERLAIN, Westons, Lyndhurst, Hants, black and white, British Alpine, **Whimsical of Westons** (H.B. 7051), born 26th March, 1925; s †Didgemere Dictator (H.B. 6816), d Champion Wistful of Westons 2nd (4641) s d †Edenstead Pluck (H.B. 3007). (Last kid, 24th March, 1927).

III. (15s.)—Mrs. M. J. RUTTER, Gt. Cheverell, Wilts, British Toggenburg, brown and white hornless, **Raydon Morella***, born 15th March, 1922; s Homestall Provost Marshall (5412), d Raydon Cherry pie (3870), s d †Edenstead Pluck (3007). (Last kid, 1st March, 1927).

CLASS 189.—*Female Goat, in-Milk, any age, Saanen or British Saanen.* [3 entries.]

I. (£2 10s.)—Miss EMILY SKIDMORE, Ashley Leigh, Box, Wilts, white, British Saanen, **Heddon Sainfoin** (H.B. 4791), born 4th March, 1921; s †Peter of Bashley (H.B. 4207), d Wigmore Clover (**Q* 2197). (Last kid, 19th March, 1927).

II. (£1 10s.)—Miss JANE PORT, Twisby, Catsfield, Battle, white, British Saanen, **Wells Pearl** (B.S. 19, 6427), born 1st April, 1924; s Ch. †Ridgeway Ranunculus (5528), d *Roughets Moneymaker (5215), s d Cornish Jester (4188). (Last kid, 26th February, 1927).

III. (15s.)—Miss EMILY SKIDMORE, white, British Saanen, **Heddon Soapsuds** (H.B. 7449), born 5th March, 1925; s Ch. Schnapps (G. 34), d Heddon Star-grass (5265), s d †Peter of Bashley. (Last kid, 7th February, 1927).

CLASS 190.—*Female Goat, in-Milk, any age, any other variety.* [11 entries.]

I. (£2 10s.)—Mrs. F. I. MORCOM, The Clock House, Bromsgrove, biscuit, Hornless Anglo-Swiss, **Cornish Guinevere**, born 22nd March, 1923; s Ch. †Dochfour Arrogance, d Cornish Igraine, s d †Tremedda Percival.

II. (£1 10s.)—Ditto, ditto, roan, horned Anglo-Swiss, **Cornish Quill**, born 12th February, 1925; s †Didgemere Quirk, d §Cornish Magpie Q*, s d †Dochfour Wilfrid.

III. (15s.)—Miss POPE, Bashley Lodge, New Milton, Hants, black and white, **Proverb of Bashley** (6932), born 11th March, 1925; s †Ridgeway Rumpelstiltskin (6536), d Paradox of Bashley (6424), s d Herne Bay Thark (4916). (Last kid, 3rd April, 1927).

R.—Miss C. CHAMBERLAIN, Westons, Lyndhurst, Hants, black, one white mark, **Weird of Westons** (H.B. 6936), born 6th March, 1925; s Ridgeway Rumpelstiltskin (H.B. 6536), d Welfare of Westons 2* 2* (H.B. 4640), s d Ch. Proud (H.B. 2853). (Last kid, 24th March, 1927).

H.C.—Mrs. THEOBALD BUTLER, Elms Court, near Cheltenham, Toggenburg Markings, Swiss F.B., **Bees Wing**, born 1st April, 1925, bred by Mrs. Dingle Fordyce, Charingworth Court, Winchcombe; s †Durley Desmond, d Bessie, prizewinner, s d one of Countess Bathurst's stud goats. (Last kid, 22nd February, 1927).

C.—Mrs. F. I. MORCOM, brown, with black and white markings, Horned A.N.S., **Cornish Fudge**, born 18th April, 1921; s †Tremedda Percival, §Nougat Q*, s d †Grange Granite. (Last kid, 13th February, 1927).

CLASS 191.—*Goatling, British Alpine, Toggenburg or British Toggenburg, over one but not exceeding two years.* [3 entries.]

I. (£2 10s.)—Miss POPE, Bashley Lodge, New Milton, black, **Pleader of Bashley** (7590), born 28th March, 1926; s †Prefect of Bashley (6931), d Playfellow of Bashley (Q*Q*Q*Q* 6541), s d Herne Bay Thark.

II. (£1 10s.)—Mrs. R. E. WROUGHTON, Furringtons, Merriott, Somerset, brown and white, **Tarbert Miss Muffett**, born 5th February, 1926, bred by Miss Ransford, Finchhampstead, Berks; s Druid (6479), d Bunty (2787), s d Brendon Carnation (1863).

III. (15s.)—Miss POPE, Toggenburg, **Plaything of Bashley** (7455), born 25th February; s †Prefect of Bashley (6931), d Ch. Playmate of Bashley (Q*Q*Q* 4675), s d Wilful of Westons (4673).

CLASS 192.—*Goatling, any other variety, over one but not exceeding two years.* [7 entries.]

I. (£2 10s.)—Miss POPE, Bashley Lodge, New Milton, white, **Poetry of Bashley** (7458), born 28th February, 1926; s †Prefect of Bashley (6931), d Polly of Bashley (6425), s d Ch. Schnapps (S. 34).

II. (£1 10s.)—Miss EMILY SKIDMORE, Ashley Leigh, Box, Wilts, white, British Saanen, **Heddon Sceptre** (7447), born 3rd January, 1926; s Ch. Schnapps (S. 34), d Heddon Speedwell **Q**, s d Brendon Friday.

III. (15s.)—Miss C. CHAMBERLAIN, Westons, Lyndhurst, Hants, white, **Willing of Westons** (H.B. 7471), born 5th February, 1926; s Ch. Schnapps, 2* 2** d Wish of Westons (H.B. 5859), s d Herne Bay Thark (H.B. 4916).

R.—Mrs. MORCOM, The Clock House, Bromsgrove, fawn and white, Anglo-Nubian Swiss, **Cornish Delight**, born 2nd February, 1926; s Ch. †Ridgeway Ranunculus, d §Nougat Q*, s d †Grange Granite.

H.C.—Miss EMILY SKIDMORE, white, **Heddon Silvo** (H.B. 7452), born 27th February, 1926; s Ch. Schnapps (S. 34), d Heddon Sainfoin (4791), s d †Peter of Bashley.—Mrs. WROUGHTON, Merriott, Somerset, cream and white, **Beechmead Gwennie**, born 28th February, 1926, bred by Mrs. Hines, Beechmead, Twyford, Herts; s †Beechmead Tim, d Beechmead Girlie (**Q*Q*), s d Champ †Proud.

CLASS 193.—*Female Kid, any variety, not exceeding one year.* [7 entries.]

I. (£2 10s.)—Mrs. MORCOM, The Clock House, Bromsgrove, black and white, Hornless Anglo-Nubian-Swiss, **Cornish Butterscotch**, born 12th June, 1926; s Ch. †Ridgeway Ranunculus, d Cornish Humbug (Q*), s d Ch. †Dochfour Arrogance.

II. (£1 10s.)—Miss C. CHAMBERLAIN, Westons, Lyndhurst, Hants, white, British Saanen, **Worthy of Westons**, born 21st February, 1927; s Poet of Bashley (H.B. 7457), d *Q*Q Welfare of Westons (H.B. 4640), s d Ch. Proud (H.B. 2853).

III. (15s.)—Miss JANE PORT, Twisley, Catsfield, Battle, white, dark markings, **Wells Petronella** (7940), born 26th February, 1927; s Heddon Punchinello (S. 78), d Wells Pearl (6427), s d Ch. †Ridgeway Ranunculus (5528).

R.—Miss EMILY SKIDMORE, Ashley Leigh, Box, Wilts, white, **Heddon Silverbell**, born 8th February, 1927; s Heddon Solomon (7450), d Heddon Saffron (5258).

H.C.—Ditto, ditto, white, British Saanen, **Heddon Sonia**, born 24th February, 1927; s Ch. Schnapps, d Heddon Sophia, s d †Peter of Bashley.

C.—Mrs. M. J. RUTTER, Gt. Cheverell, Wilts., white, British Saanen, **Raydon Celestion**, born 1st March, 1927; s Champion Schnapps (S. 34), d §Raydon Morella*, s d Homestall Provost Marshall.

CLASS 194.—*Milking Competition for Quality [Butter Fat only], quantity and time [two milkings.]* [18 entries.]

I. (£2 10s.)—Miss POPE, Bashley Lodge, New Milton, Hants, Toggenburg, **Playfellow of Bashley** (Q*Q*Q*Q* 6541), born 25th April, 1924; s Herne Bay Thark (4916), d Ch. Playmate of Bashley (Q*Q*Q* 4675), s d Wilful of Westons (4673). (Last kid, 26th March, 1927).

II. (£1 10s.)—Mrs. M. J. RUTTER, Gt. Cheverell, Wilts, British Toggenburg, brown and white hornless, **Raydon Morella***, born 15th March, 1922; s Homestall Provost Marshall (5412), d Raydon Cherrypie (3870), s d †Edenstead Pluck (3007). (Last kid, 1st March, 1927).

III. (15s.)—Ditto, ditto, British Toggenburg, brown and white, **Raydon Aerial** (6946), born 15th March, 1922, s Raydon St. Gallen (6751), d *Raydon Morella (5412), s d Homestall Provost Marshall (3870). (Last kid, 3rd April, 1927).

R.—Miss JANE PORT, Twisby, Catsfield, Battle, white, British Saanen, **Wells Pearl** (B.S. 19, 6427), born 1st April, 1924; s Ch. †Ridgeway Ranunculus (5528), d *Roughets Money-maker (5215), s d Cornish Jester (4188). (Last kid, 26th February, 1927).

CLASS 195.—*Milking Competition for Quantity and Time only [three milkings.]* [11 entries.]

I. (£2 10s.)—Miss POPE, Bashley Lodge, New Milton, Hants, Toggenburg, **Playfellow of Bashley** (Q*Q*Q*Q* 6541), born 25th April, 1924; s Herne Bay Thark (4916), d Ch. Playmate of Bashley (Q*Q*Q* 4675), s d Wilful of Westons (4673). (Last kid, 26th March, 1927).

II. (£1 10s.)—Miss SKIDMORE, Ashley Cottage, Box, Wilts, black roan, born 5th March, 1925, bred by Miss Emily Skidmore, Ashley Leigh, Box, Wilts; s †Peter of Bashley (H.B. 4207), d Heddon Amie (*H.B. 4409). (Last kid, February, 1927).

III. (15s.)—Miss JANE PORT, Twisby, Catsfield, Battle, white, British Saanen, **Wells Pearl** (B.S. 19, 6427), born 1st April, 1924; s Ch. †Ridgeway Ranunculus (5528), d *Roughets Moneymaker (5215), s d Cornish Jester (4188). (Last kid, 26th February, 1927).

R.—Miss C. CHAMBERLAIN, Westons, Lyndhurst, Hants, black and white, British Alpine, **Whimsical of Westons** (H.B. 7051), born 26th March, 1925; s †Ridgemere Dictator (H.B. 6816), d Champion Wistful of Westons 2nd (4641), s d †Edenstead Pluck (H.B. 3007). (Last kid, 24th March, 1927).

SPECIAL PRIZES.

GIVEN BY THE BRITISH GOAT SOCIETY.

A Challenge Certificate for the Best Female Goat over two years that has born a kid.

I.—Miss POPE, Bashley Lodge, New Milton, Hants, Toggenburg, **Playfellow of Bashley** (Q*Q*Q*Q* 6541), born 25th April, 1924; s Herne Bay Thark (4916), d Ch. Playmate of Bashley (Q*Q*Q* 4675), s d Wilful of Westons (4673). (Last kid, 26th March, 1927).

A Challenge Certificate for the Best Dual Purpose Goat over two years that has born a kid.

I.—Miss POPE, Bashley Lodge, New Milton, Hants, Toggenburg, **Playfellow of Bashley** (Q*Q*Q*Q* 6541), born 25th April, 1924; s Herne Bay Thark (4916), d Ch. Playmate of Bashley (Q*Q*Q* 4675), s d Wilful of Westons (4673). (Last kid, 26th March, 1927).

R.—Miss C. CHAMBERLAIN, Westons, Lyndhurst, Hants, black and white, British Alpine, **Whimsical of Westons** (H.B. 7051), born 26th March, 1925; s †Didgemere Dictator (H.B. 6816), d Champion Wistful of Westons 2nd (4641), s d †Edenstead Pluck (H.B. 3007). Last kid, 24th March, 1927).

A Bronze Medal for the Best Female Exhibit.

I.—Miss POPE, Bashley Lodge, New Milton, Hants, Toggenburg, **Playfellow of Bashley** (Q*Q*Q*Q* 6541), born 25th April, 1924; s Herne Bay Thark (4916), d Ch. Playmate of Bashley (Q*Q*Q* 4675), s d Wilful of Westons (4673). (Last kid, 26th March, 1927).

The Prizes awarded at this Show were also included in the awards for the British Goat Society's "Breeder's" Perpetual Challenge Cup and "Stud Goat" Challenge Cup.

Note.—To compete for the Dual Purpose Challenge Certificate, a Goat must have been exhibited in one of the first three Inspection Classes, and also in the Quality Milking Competition.

PIGS.

BERKSHIRE.

(£9 towards the Prizes in these Classes and the Challenge Cups were given by the National Pig Breeder's Association, and ages were calculated to May 24th, 1927.

CLASS 196.—*Berkshire Boar, exceeding 18 months old.* [4 entries.]

I. (£10) and Challenge Cup*—T. CHETTLÉ (for Reading Corporation), Manor Farm, Whitley, Reading, **Whitley Charles** (B. 1356), born 8th August, 1924; s Buckland Kirkham (B. 1080), d Whitley Paila 2nd (S. 1693), s d Murrell Binky (21236).

II. (£5) and Reserve for Challenge Cup*—JOHN D. PLAYER, Lenton, Nottingham, **Leadenham Duke**, born 15th January, 1923, bred by Capt. J. S. Reeve, Leadenham House, Lincoln; s Pamber Paragon, d Leadenham Turvey 5th, s d Manor Robert.

CLASS 197.—*Berkshire Boar, not exceeding 18 months old.* [4 entries.]

I. (£7.)—The Hon. Mrs. BRUCE WARD, Godinton, Ashford, Kent, **Godinton President 3rd** (B. 1816), born 21st July, 1926; s Highfield Marina President 5th (B. 1303), d Godinton Daisy (S. 5738), s d Hammonds Bean (B. 1041).

II. (£4.)—J. T. EASON, Woodhouse Farm, Andover, **Marksman** (1821), born 13th April, 1926, bred by Lieut.-Commander W. H. Hoare, R.N., Goddards Farm, Hatherden, Andover; s Murrell Peacemaker (1482), d Woodhouse Edna (6868), s d Pamber Patlander (23416).

III. (£2.)—T. CHETTLÉ (for Reading Corporation), Manor Farm, Whitley, Reading, **Whitley Charger** (B. 1876), born 9th January, 1926; s Whitley Charles (B. 1356), d Whitley Elvan (S. 5056), s d Whitley Briquet (B. 175).

R.—The Hon. Mrs. BRUCE WARD, **Godinton President** (B. 1736), born 17th January, 1926; s Highfield Marina President 5th (B. 1303), d Godinton Valeria (S. 3406), s d Iwerne Gold Bag (B. 379).

CLASS 198.—*Berkshire Breeding Sow, exceeding 18 months old.* [6 entries.]

I. (£10.)—J. D. PLAYER, Lenton, Nottingham, **Lenton Sally Lunn**, born 14th April, 1925; s Leadenham Duke, d Basildon Sally Lunn 3rd, s d Murrell Mike.

II. (£5.)—WILLIAM ALLEN BINDLEY, Pamington Court Farm, near Tewkesbury, **Pamington Puck** (S. 5832), born 28th July, 1925; s Pamington Scarum (B. 1088), d Stonehenge Sunrise (S. 1946), s d Pamber President (22702).

*For best Boar in the Berkshire Classes, to be won twice in succession or three times in all before becoming the property of the Exhibitor.

III. (£2.)—Hon. Mrs. BRUCE WARD, Godinton, Ashford, Kent, **Promise** (S. 6265), born 5th April, 1925, bred by Mrs. Florence Nagle, Houldrop, Headley, Newbury; s Pamber President (22702), d Pamber Plunkette (22700), s d Minley King (18364).

CLASS 199.—*Berkshire Breeding Sow, not exceeding 18 months old.*

[10 entries.]

I. (£7) and Challenge Cup†—ERIC SYKES, Richings Park, Colnbrook, Bucks, **Richings Beauty 10th**, born 27th February, 1926, bred by Friend Sykes, Richings Park, Colnbrook, Bucks; s Heale Nutmeg 2nd (26448), d Herriard Beauty 1st (238), s d Herriard Colonel (22042).

II. (£4.)—WILLIAM ALLEN BINDLEY, Pamington Court Farm, near Tewkesbury, **Pamington Ping** (S. 6460), born 11th January, 1926; s Pamington Searum (B. 1088), d Herriard Barbara 8th (S. 3396), s d Pamber Persimmon (23402).

III. (£2.)—J. D. PLAYER, Lenton, Nottingham, **Lenton Augusta 4th**, born 19th January, 1926; s Leadenham Duke, d Lenton Athene 2nd, s d Highfield Royal President 3rd.

R.—Ditto, ditto, **Lenton Virtue 4th**, born 28th January, 1926; s Leadenham Duke, d Basildon Virtue 18th, s d Murrell Mike.

V.H.C.—WILLIAM ALLEN BINDLEY, **Pamington Pong** (S. 6461), born 11th January, 1926; s Pamington Searum (B. 1088), d Herriard Barbara 8th (S. 3396), s d Pamber Persimmon (23402).

H.C.—The Hon. Mrs. BRUCE WARD, Godinton, Ashford, Kent, **Godinton Winsome Lunn** (S. 6837), born 22nd January, 1926; s Highfield Marina President 5th (B. 1303), d Forest Winsome Lunn 24th (S. 6139), s d Pamber Gay Crusader (25740).

C.—T. CHETTL (for Reading Corporation), Manor Farm, Whitley, Reading, **Whitley Elytrums Casque** (S. 7059), born 10th January, 1926; s Whitley Cassel (B. 1355), d Whitley Elytrum (S. 5060), s d Whitley Briquet (B. 175).—ERIC SYKES, Richings Park, Colnbrook, Bucks, **Richings Lady Recorder 2nd** (S. 6202), born 20th February, 1926, bred by Friend Sykes, Richings Park, Colnbrook, Bucks; s Historian (B.1218), d Richings Beauty 1st (3073) s d Heale Nutmeg 2nd (26448).

†For best Sow in the Berkshire Classes.

LARGE BLACK.

(£20 towards the Prizes in these Classes and the Silver Medals were given by the Large Black Pig Society).

CLASS 200.—*Large Black Boar, farrowed before May 1st, 1926.*
[6 entries.]

I. (£10) and Silver Medal*—**WALTER J. WARREN**, Deacons Farm, Staplegrove, Taunton, **Kibbear Royal Willie**, born 9th September, 1922; s Vahan Jack 5th, d Kibbear Lady Hilda 1st, s d Bassingbourn.

II. (£5.)—**R. GYNN & SON**, Treslay, Camelford, Cornwall, **Treslay Boy** (B.11), born 9th January, 1925; s Westpetherwin General (A.111), d Tresley Duchess 1st (A.3084), s d Rialton Hero (13241).

III. (£2.)—**WALTER J. WARREN**, **Kibbear Royal Friar 4th**, born 3rd May, 1924; s Farthings Black Prince, d Burton Countess 1st, s d Brent Councillor.

R.—**DOUGLAS MELVILLE WILLS**, Barley Wood, Wrington, **Treator Ambassador**, born 5th April, 1924, bred by F. E. Hicks, Treator House, Padstow, Cornwall; s Tregirls Vicar, d Valley Kitty 3rd (28966), s d Treveglos Marksman (7761).

V.H.C.—**SIR ARTHUR WHEELER**, Bart., Woodhouse Eaves, Loughborough, **Bardolph Catcher** (B.715), bred by A. C. Beart, Stourbridge, King's Lynn; s Bardolph Chieftain (25125), d Docking Catch On (76528), s d Bardolph Tyro (29697).

CLASS 201.—*Large Black Boar, not exceeding 12 months old on May 1st, 1927.* [4 entries.]

I. (£7) and Reserve for Silver Medal*—**HARRY ELDRED BASTARD**, Tinten Manor, St. Tudy, Cornwall, **Tinten Leader** (C.849), born 4th May, 1926; s Cornwood Daunt (B.21), d Tinten Black Bess 51st (B.270), s d Cornwood J.P. 2nd (28949).

II. (£4.)—**W. WOOLLAND**, Baydon Manor, Ramsbury, Wilts, **Baydon Royal Son 8th** (Ear No. 363); s Mayton Royal Son 3rd (27581), d Baydon Nightingale 9th (42772), s d Runtley Captain (24433).

III. (£2.)—**DOUGLAS MELVILLE WILLS**, Barley Wood, Wrington, Somerset, **Barleywood Ambassador**, born 18th August, 1926; s Treator Ambassador (A.1081), d Barleywood Seniorita 5th (B.920), s d Stanborough Laddie (29111).

R.—**Captain WILFRID BRUCE**, C.B.E., Haseley Manor, Wallingford, **Haseley Frolic** (C.791), born 2nd August, 1926; s Pednor Result 2nd (29383), d Pednor Mischief 2nd (82466, s d Oadby Chief (16587).

CLASS 202.—*Large Black Boar, farrowed in 1927.* [6 entries.]

I. (£7.)—**W. WOOLLAND**, Baydon Manor, Ramsbury, Wilts, **Baydon General 4th** (Ear No. 456), born 1st January; s Valley General 2nd (25401), d Martham Princess 5th (A. 5340), s d Martham Marvel (22073).

II. (£4.)—**WALTER J. WARREN**, Deacons Farm, Staplegrove, Taunton, **Kibbear Royalist 5th**, born 27th January; s Kibbear Royal Willie, d Haselbury Beauty, s d Brent Councillor.

*For best Boar in the Large Black Classes.

III. (£2).—**SIR ARTHUR WHEELER**, Bart., Woodhouse Eaves, Loughborough, **Oadby Punch** (D.17), born 2nd January; s Bardolph Catcher (B.715), d Charlwood Ladylike 3rd (123266), s d Charlwood Earl 1st (18707).

R.—**HARRY ELDRED BASTARD**, Tinten Manor, St. Tudy, Cornwall, **Tinten Porter 1st** (D.11), born 3rd January; s Martham Marvel (22073), d Tinten Black Bess 47th (89392), s d Westpetherwin Chief 1st (14483).

V.H.C.—**Captain WILFRED BRUCE**, C.B.E., Haseley Manor, Wallingford, **Haseley Moor** (D.7), born 4th January; s Haseley Monarch 2nd (B.209), d Haseley Mulberry 1st (C.44), s d Docking Monarch (23455).

CLASS 203.—*Large Black Breeding Sow, farrowed before May 1st, 1926.* [9 entries.]

I. (£10) and Reserve for Silver Medal†—**WALTER J. WARREN**, Deacons Farm, Staplegrove, Taunton, **Pednor Lass 5th**, born 14th January, 1925, bred by E. W. Edwards, Pednor House, Chesham; s Pednor Royal 2nd, d Treveglos Lass 20th, s d Vahan Melva 2nd.

II. (£5).—**R. GYNN & SON**, Treslay, Camelford, Cornwall, **Westpetherwin Sunbeam** (A.170), born 22nd January, 1924, bred by J. E. Heard, Launceston; s Trevisquite Joseph (20911), d Westpetherwin Lady 2nd (A.74280), s d Valley Royal Victor (7563).

III. (£2).—**W. WOOLLAND**, Baydon Manor, Ramsbury, Wilts, **Molly of Moulton** (93934), born 24th January, 1922, bred by Northampton Farm Institute, Moulton, Northants; s Streetley Victor 2nd (11577), d Clipston Moultona (66804), s d Docking Clipston (10815).

R.—**SIR ARTHUR WHEELER**, Bart., Woodhouse Eaves, Loughborough, **Charlywood Ladylike 3rd** (123266), born 25th April, 1923, bred by Sir Henry Hall, Gloverswood Farm, Charlwood; s Charlwood Earl 1st (18707), d Burwell Ladylike 1st (81818), s d Kepington Burwell Boy (15393).

V.H.C.—**WALTER MELVILLE WILLS**, Estate Office, Bracken Hill, Leigh Woods, near Bristol, **Brackenhill Senora 2nd** (B.3178), born 25th May, 1925; Brackenhill Naik 1st (29057), d Whiteway Senora 33rd (114560), s d Cornwood Doonard (20621).

CLASS 204.—*Large Black Breeding Sow, not exceeding 12 months old on May 1st, 1927.* [8 entries.]

I. (£10) and Silver Medal†—**W. WOOLLAND**, Baydon Manor, Ramsbury, Wilts, **Baydon Nightingale 22nd** (Ear No. 354), born 4th June, 1926; s Valley General 2nd (25401), d Clipston Nightingale (80240), s d Docking Laddie (10679).

II. (£5).—**HARRY ELDRED BASTARD**, Tinten Manor, St. Tudy, Cornwall, **Tinten Princess 16th** (C.1034), born 2nd May, 1926; s Westpetherwin General (A.111), d Tinten Princess 4th (73608), s d Fentengollen Lad (10567).

III. (£2).—**Captain WILFRID BRUCE**, C.B.E., Haseley Manor, Wallingford, **Haseley Myosotis 2nd** (C.1148), born 3rd June, 1926; s Swift's A.1 (30611), d Haseley Myosotis (115208), s d Docking Monarch (23455).

R.—**WALTER J. WARREN**, Deacon's Farm, Staplegrove, Taunton, **Kibbear Beauty 1st**, born 2nd July, 1926; s Kibbear Royal Prior 4th, d Haselbury Beauty, s d Brent Councillor.

V.H.C.—**W. J. ACREMAN**, Langland Farm, Catcott, Bridgwater, **Cornwood Souvenir**, born 20th August, 1926, bred by J. H. Glover, J.P., Cornwood, South Devon; s Martham Marvel (22073), d Cornwood Pretty Lass A (4118), s d Drayton Scorchers (30447).

†For best Sow in the Large Black Classes.

LARGE WHITE.

(£15 towards the Prizes in these Classes and the Champion Prize were given by the National Pig Breeders' Association).

CLASS 205.—*Large White Boar, farrowed before July 1st, 1926.*
[8 entries.]

I. (£10) and Reserve for Champion*—**W. WHITE & SONS**, Taunton, Somerset, **Taunton Jay 38th**, born 1st January, 1925; s Caidmore Jay (36575), d Taunton Amy 11th (93086), s d Taunton Araby 3rd (27325).

II. (£5.)—**C. W. KING & Co., Ltd.**, Regent Square, Northampton, **Duston Delegate 18th** (52719), born 14th February, 1925; s Duston Delegate 3rd (41107), d Mary of Duston 2nd (91456), s d Boxted Prince (33115).

III. (£2.)—**LT.-COL. SIR CHARLES WILLIAM MILES**, Bart., Walton-in-Gordano, Clevedon, **Gordano Banner 8th** (52901), born 24th January, 1925; s Histon Banner 3rd (41453), d Gordano Lassie (105446), s d Ramsey Turk 14th (30297).

R.—**Major W. LLEWELLEN PALMER**, Bearfield, Bradford-on-Avon, **Bourne Bradbury 45th**, born 29th July, 1925, bred by —. Wherry, Bourne; s Bourne Bradbury, d Bourne Bonetta 27th, s d Bourne Champion Boy.

V.H.C.—**J. RACKLEY & SONS**, Hermitage Farm, Silver Street, Edmonton, N.18, **Bourne King David 223rd** (Vol. 43), born 25th July, bred by E. Wherry, Bourne, Lincs.; s Bourne King David 20th (40527), d Bourne Champion Queen 5th (76980), s d Sapperton Boy (24471).

CLASS 206.—*Large White Boar, farrowed on or after July 1st, 1926.*
[9 entries.]

I. (£7.)—**W. WHITE & SONS**, Taunton, Somerset, **Taunton Royal Increase 5th**, born 7th July, 1926; s Taunton Jay 41st (53699), d Taunton Mossrose 6th, s d Spalding Monitor 12th (48749).

II. (£4.)—**ROWLAND P. HAYNES**, Delves Green Farm, Wednesbury, **Marchington Monarch 2nd** (Vol. 44), born 26th July, 1926, bred by A. W. Leason, Brookhouse Farm, Uttoxeter; s Bourne King David 217th, d Battersford Queen 8th, s d Lion Hollingsworth of Walcot.

III. (£2.)—**J. RACKLEY & SONS**, Hermitage Farm, Silver Street, Edmonton, N.18, **Edmonton King David, 16th**; s Bourne King David 145th (52353), d Edmonton Pride 25th (146318), s d Bushes Turk 16th (47715).

R.—**Major W. LLEWELLEN PALMER**, Bradford-on-Avon, **Godmersham Bradbury 4th** (91), born 4th July, 1926; s Bourne Bradbury 46th, d Bourne Bonetta 26th, s d Bourne Champion Boy.

V.H.C.—**WILLIAM JOHN THOMAS**, Treskerby, Redruth, Cornwall, **Treskerby Baron 12th** (Vol. 44), born 30th August, 1926; s Treskerby Baron 7th (Vol. 43), d Treskerby Catalina 13th (132106), s d Vulcan of Bezurrell (30765).

*A Gold Medal for the best Animal in the Large White Classes subject to there being not less than 30 entries, or a Silver Medal if not less than 15.

H.C.—C. W. KING & CO., LTD., 8, Regent Square, Northampton, **Newhall Bar None 6th** (Ear No. 748, Vol. 44), born 1st July, 1926, Bred by Capt. R. S. Hall, New Hall, Tendring, Clacton-on-Sea; s Newhall Bar None 5th (Vol. 43), d Newhall Sunrise 9th (Vol. 43), s d Forest Comet 2nd (36969).

CLASS 207.—*Large White Breeding Sow, farrowed before 1926.* [12 entries.]

I. (£10) and Champion*—J. RACKLEY & SONS, Hermitage Farm, Silver Street, Edmonton, N.18, **Bourne Bonetta 27th** (103300), born 1st January, 1923, bred by E. Wherry, Bourne, Lincs.; s Bourne Champion Boy (33091), d Bourne Bonetta 6th (76950), s d Baron of Bourne (28633).

II. (£5.)—ROWLAND P. HAYNES, Delves Green Farm, Wednesbury, **Wall Jewel** (109856), born 26th August, 1922, bred by W. W. Ryman, Wall, Lichfield; s Brookfield Banner (28965), d Jewel of Wall (60006), s d Kitchener of Caldmore (22553).

III. (£2.)—W. WHITE & SONS, Taunton, **Taunton Amy 100th**, born 7th July, 1923; s Caldmore Jay (36575), d Taunton Amy 12th (93090), s d Taunton Araby 3rd (27325).

R.—Major W. LLEWELLEN PALMER, Bradford-on-Avon, **Bourne Bonetta** (104), born 5th January, 1925, bred by Mr. Wherry, Bourne; s Bourne King David 30th, d Bourne Bonetta 25th, s d Bourne Bar None.

V.H.C.—Lt.-Col. Sir CHARLES WILLIAM MILES, Bart., Walton-in-Gordano, Clevedon, **Bourne Beauty 52nd**, born 6th June, 1924, bred by Edmund Wherry, Bourne, Lincs.; s Broker of Bourne (40617), d Bourne Beauty 7th (64886), s d Bourne King John (26091).

H.C.—H. W. PANES, The Down Farm, Mells, Frome, **Spalding Merry Girl** (148726), born 17th August, 1924, bred by Alfred White, Hellegom, Spalding; s Spalding Monitor 9th (48743), d Merry Girl of Spalding (91568), s d Banner of Caldmore (25879).

CLASS 208.—*Large White Breeding Sow, farrowed in 1926.* [10 entries.]

I. (£7.)—J. RACKLEY & SONS, Hermitage Farm, Silver Street, Edmonton, N.18, **Edmonton Irene 9th** (Vol. 43), born 2nd January; s Bushes Turk 16th (47715), d Bushes Irene 26th (103742), s d Copped Hall Conrad (33289).

II. (£4.)—Messrs. W. WHITE & SONS, Taunton, Somerset, **Taunton Mossrose 4th**, born 2nd January; s Taunton Champion Jay 3rd (53683), d Histon Mossrose 8th (147148), s d Jay of Histon (37227).

III. (£2.)—Major W. LLEWELLEN PALMER, Bradford-on-Avon, **Godmersham Duskey Queen**, born 4th January; s Chilham Bachelor, d Duston Queen Mary 5th, s d Bourne Baron 3rd.

R.—T. C. SLADE, Park Farm, Currey Mallett, Taunton, **Curry Mana 3rd** (Vol. 43), born 4th January; s Bourne King David 168th (52371), d Curry Mana (145956), s d Baron of Histon (40157).

*A Gold Medal for the best Animal in the Large White Classes subject to there being not less than 30 entries, or a Silver Medal if not less than 15.

V.H.C.—WILLIAM JOHN THOMAS, Treskerby, Redruth, Cornwall, **Treskerby Cataline 35th** (Vol. 44), born 23rd July; s Treskerby Jay 14th (48893), d Treskerby Catalina 21st (Vol. 43), s d Taunton Jay 36th (48827).

CLASS 209.—*Pair of Large White Breeding Sows, farrowed in 1927.*
[8 entries.]

I. (£7.)—J. RACKLEY & SONS, Hermitage Farm, Silver Street, Edmonton, N.18, born 3rd January; s Bourne Bar None 316th (52269), d Edmonton Pride 2nd (104842), s d Bosco of Hallastone (39261).

II. (£4.)—WILLIAM JOHN THOMAS, Treskerby, Redruth, Cornwall, born 8th January; s Treskerby Baron 7th (Vol. 43), d Treskerby Catalina 21st (Vol. 43), s d Taunton Jay 36th (48827).

III. (£2.)—MESSRS. W. WHITE & SONS, Taunton, Somerset, born 1st January; s Taunton Champion Jay 3rd (53683), d Histon Mossrose 8th (147148), s d Jay of Histon (37227).

R. Major W. LLEWELLEN PALMER, Bradford-on-Avon, born 2nd January; s Cophorne Snowman 21st, d Bourne Bonetta 134th, s d Bourne Bradbury.

V.H.C.—HARRY PAXTON, Russells Bank Farm, Upper Longden, near Rugeley, **Brereton Bluebell and Brereton Bluebell 2nd**, born 4th January; s Fullbrook Masher (Vol. 43), d Brereton Ann 4th (145420, Vol. 42), s d Brereton Boy (52403).

MIDDLE WHITE.

(£15 towards the Prizes in these Classes and the Champion Prizes were given by the National Pig Breeders' Association).

CLASS 210.—*Middle White Boar, farrowed before July 1st, 1926.*
[8 entries.]

I. (£10.)—MRS. VICTOR HAYWARD, Bookham Grove, Great Bookham, Surrey, **Bookham Super Tax** (54231), born 12th January, 1924; s Caldmore Super Tax (43545), d Beenham Choice (94432), s d Pendley of Beenham (35555).

II. (£5.)—ARTHUR LENEY, Chestercourt, Edenbridge, Kent, **Salts Woodman**, (495), born 1st March, 1926; s Wharfedale Deliverance (32575), d Amport Rosadora (Vol. 43), s d Hammonds Herald (44353).

III. (£2.)—Ditto, ditto, **Salts Illuminator** (465), born 28th January, 1926; s Wharfedale Prince (32625), d Wharfedale Nelah (101474), s d Wharfedale Deliverance (32575).

R.—MRS. SOFER WHITBURN, Amport St. Mary's, Andover, Hants, **Amport Ranger** (0148, Vol. 44), born 2nd January, 1926; s Ranger of Midlothian (46115), d Hammonds Hagar 23rd (136832), s d Hammonds Perfection Pride (31675).

H.C.—S. BIDE & SONS, LTD., Pedigree Pig Farm, Farnham, Surrey, **Lackham Pioneer 2nd**, born 4th July, 1925, bred by Lord Glanely, Chippenham, Wilts; s Lackham Pioneer (50569), d Southmore Peonie 3rd (10064), s d Southmore Chief (35760).—H. NEAVEYSON, Airedale, Dogsthorpe, Peterborough,

Prestwood Pathfinder, born 7th April, 1926, bred by W. H. Hill, Bushbury Hall, Wolverhampton; s Pendley Parth (45879), d Brockencote Lady (150348), s d Prestwood Peon (45965).

CLASS 211.—*Middle White Boar, farrowed on or after July 1st, 1926.* [7 entries.]

I. (£7.)—W. WOOLLAND, Baydon Manor, Ramsbury, Wilts (Ear No. 2981) (Eligible for Herd Book), born 21st July, 1926; s Histon Rover 57 (50223), d Hammonds Hagar 32nd (Vol. 43), s d Hammonds Remus (50005).

II. (£4.)—ARTHUR LENEY, Chestercourt, Edenbridge, Kent (Ear No. 604), born 7th August, 1926; s Wharfedale Deliverance (32575), d Dorothy of Salts (135442), s d Mistley Millrace (45383).

III. (£2.)—G. P. ARMITAGE, Conkwell Grange, Limpley Stoke, near Bath, (eligible for Vol. 44), born 1st July, 1926, bred by Arthur Leney, Edenbridge, Kent; s Wharfedale Deliverance (32575), d Salts Bettina 2nd (141672), s d Councillor of Wharfedale (46505).

C.—MRS. SOFER WHITBURN, Amport St. Mary's, Andover, Hants, **Amport Scotty 7th** (0331, Vol. 44), born 3rd July, 1926; s Scotty of Norsbury (46323), d Pendley Fuchsia 6th (140606), s d Hawthorn Sultan (38741).

CLASS 212.—*Middle White Breeding Sow, farrowed before 1926.* [4 entries.]

I. (£10.)—Major PIGOTT & PARTNERS, Hill Place Farm, Knaphill, Surrey, **Whitehill Hagar's Choice 10th**, born 19th January, 1924, bred by Mrs. Foot, Whitehill, Berkhamsted, Herts; s Hammonds Hasty, d Hammonds Choice, s d Wharfedale Hector.

II. (£5.)—MRS. SOFER WHITBURN, Amport St. Mary's, Andover, Hants, **Amport Choice 5th** (30, Vol. 43), born 20th July, 1925; s Histon Millpond (35161), d Choice of Pendley 3rd (134738), s d Stortford Rover (39509).

III. (£2.)—MRS. VICTOR HAYWARD, Bookham Grove, Great Bookham, Surrey, **Bookham Choice 4th** (150276), born 12th January, 1924; s Caldmore Super Tax (43545), d Burnham Choice (94432), s d Pendley of Beenham (35555).

R.—H. NEAVERSON, Airedale, Dogsthorpe, Peterborough, **Prestwood Rose 10th**, born 5th July, 1925. Bred by W. H. Hill, Bushbury Hall, Wolverhampton; s Prestwood Peter Pan 6th (55075), d Rose of Gorst Hall (123228), s d Brockencote Prince (34757).

CLASS 213.—*Middle White Breeding Sow, farrowed in 1926.* [10 entries.]

I. (£7.)—ARTHUR LENEY, Chestercourt, Edenbridge, Kent, **Salts Choice 13th** (416), born 1st January; s Wharncliffe Prince (32625), d Oxney Choice 5th (121344), s d Oxney Revel (35505).

II. (£4.)—Ditto, ditto, **Salts Choice 10th** (412), born 1st January; s Wharncliffe Prince (32625), d Oxney Choice 5th (121344), s d Oxney Revel (35505).

III. (£2.)—MRS. SOFER WHITBURN, Amport St. Mary's, Andover, Hants. **Salts Bettina 8th** (424, Vol. 43), born 1st January, bred by A. Leney, Chestercourt, Edenbridge, Kent; s Wharfedale Deliverance (32575), d Salts Bettina 2nd (141672), s d Councillor of Wharfedale (46505).

R. Major **PIGOTT & PARTNERS**, Hill Place Farm, Knaphill, Surrey, **Longcross Welcome 3rd**, born 4th January, bred by Col. C. E. Wilson, Longeross House, Longeross; s Pendley Don 2nd, d Pendley Welcome 4th, s d Histon Rover.

H.C.—ARTHUR LENEY, **Salts Surely 2nd** (431), born 2nd January; s Wharnccliffe Prince (32625), d Shantone Pearl (123562), s d Wharfedale Deliverance (32575).

C. W. F. S. HODGSON & SON, Morebath, Bampton, Devon, **Timewell Peerless 5th** (Ear No. 235, Vol. 43), born 4th January; s Histon Rover 51st (44587), d Timewell Peerless 2nd (143058).

CLASS 214.—*Pair of Middle White Breeding Sows, farrowed in 1927.*
[7 entries.]

I. (£7.)—Major **PIGOTT & PARTNERS**, Hill Place Farm, Knaphill, Surrey, **Burningfold Glossy 5th** and **Burningfold Glossy 6th**, born 2nd January; s Hammonds Perfections Pride, d Oxney Germ 4th, s d Burningfold Hermes 2nd.

II. (£4.)—H. NEAVERSON, Airedale, Dogsthorpe, Peterborough, **Sobrite Daphne** and **Sobrite Daphne 3rd**, born 2nd January; s Sobrite Master (Vol. 43), d Sobrite Lady Holly (Vol. 43), s d Energy of Wharfedale (Vol. 37).

III. (£2.)—S. BIDE & SONS, LTD., Pedigree Pig Farm, Farnham, Surrey, born 4th January; s Compton Choice Lad II (Vol. 44), d Compton Aleacia (Vol. 43), s d Wharnccliffe Master.

R. ARTHUR LENEY, Chestercourt, Edenbridge, Kent (Ear Nos. 679--680), born 14th January; s Wharnccliffe Prince (32625), d Oxney Choice 5th (121344), s d Oxney Revel (35505).

C.—Mr. and Mrs. R. STEWART McMURRAY, Bartletts, Holyport, Maidenhead, born 2nd January; s Hawthorn Herald 3rd (50069), d Yateby Kate (155554), s d Salopian of Prestwood.

CHAMPION PRIZES.

Gold Medals for the best Boar and the best Sow in the Middle White Classes subject to there being not less than 20 entries for Boars or 30 entries for Sows, or Silver Medals if not less than 15.

SILVER MEDALS.

Boar.—MRS. VICTOR HAYWARD, **Brookham Super Tax** (54231).

R.—ARTHUR LENEY **Salts Woodman** (495).

Sow.—ARTHUR LENEY, **Salts Choice 13th** (416).

R.—Major **PIGOTT & PARTNERS**, **Whitehill Hagar's Choice 10th**.

TAMWORTH.

(£10 towards the Prizes in these Classes and the Champion Prize were given by the National Pig Breeders' Association).

CLASS 215.—*Tamworth Boar, any age.* [5 entries.]

I. (£10.) ROWLAND P. HAYNES, Delves Green Farm, Wednesbury, **Caldmore Red Chief**, born 8th June, 1926; s Med Chief of Caldmore, d Pillith Queen Diana 2nd (155846), s d Basildon Majesty 5th.

II. (£5.) Major J. A. MORRISON, D.S.O., Basildon Park, Reading, **Knowle Newcastle** (47143), born 28th August, 1922, bred by M. R. Ibbotson, Knowle, Warwickshire; s Knowle Prince Alfred (36031), d Knowle Rosie (88122), s d Knowle Darlington (32687).

III. (£2.) THEO. A. STEPHENS, Frensham Manor, near Farnham, Surrey, **Roxley Edward 3rd** (47155), born 9th June, 1923, bred by W. T. F. Jarrold, Roxley, Norfolk; s Elmdene Wilfrid (35593), d Roxley Esmiralda (57644), s d Middleton Victory of Roxley (20675).

R. Major C. J. H. WHEATLEY, Berkswell Hall, near Coventry, **Verzons Red Gauntlet**, born 2nd February, 1926, bred by G. F. Fenwick, The Verzons, Ledbury, Herefordshire; s Basildon Golden Prince 6th (47071), d Milton Beauty 9th (144758), s d Roxley Exeter (36087).

CLASS 216.—*Tamworth Breeding Sow, farrowed in or before 1927.* [3 entries.]

I. (£10.) THEO. A. STEPHENS, Frensham Manor, near Farnham, Surrey, **Hookstile Felicity**, born 24th July, 1924; s Knowle Newcastle (47143), d Knowle Felicity (127406), s d Knowle Redstar (32713).

II. (£5.) Major C. J. H. WHEATLEY, Berkswell Hall, Coventry, **Berkswell Constance**, born 18th November, 1924; s Knowle Councillor, d Jemima of Berkswell (102046), s d Putley Marcus (32749).

III. (£2.) —Major J. A. MORRISON, D.S.O., Basildon Park, Reading, **Knowle Myrtle 2nd** (102078), born 12th July, 1922, bred by R. Ibbotson, Knowle, Warwickshire; s Knowle Bruce (36013), d Knowle Myrtle (88100), s d Knowle Dreadnought (28419).

CHAMPION PRIZE.

A Silver Medal for the best Animal in the Tamworth Classes subject to there being not less than 15 entries, or a Bronze Medal if not less than 10.

[NOT AWARDED].

GLOUCESTERSHIRE OLD SPOTS.

(£20 towards the Prizes in these Classes were given by the Gloucestershire Old Spots Pig Society).

CLASS 217.—*Gloucestershire Old Spots Boar, farrowed before July 1st, 1926.* [5 entries.]

I. (£10.)—JAMES D. BEAK, Maiden Bradley, near Bath, **Maiden Bradley Judge**, born 10th May, 1925; s Clapcote Madoc, d Maiden Bradley Maid 2nd, s d Ashton Dapper.

II. (£5.)—STANLEY HUGH BADOCK, Holmwood, Westbury-on-Trym, Bristol, **Holmwood Lilywhite** (5650), born 7th February, 1926; s Thornbury Buffalo (5542), d Holmwood Lily 3rd (X.543), s d Eastcott Roger (5393).

III. (£2.)—SHERRIFF & SONS, Lemsford, Hatfield, Herts, **Hempstead Spot** (5619), born 1st January, 1926, bred by W. T. & A. G. Bailey, Grist House Farm, Hemel Hempstead; s Hempstead General (5498), d Hempstead Daphne 2nd (17854), s d Clevehill Jim (4757).

R.—JAMES D. BEAK, **Maiden Bradley Emperor** (5680), born 8th April, 1926; s Clapcote Madoc, d Maiden Bradley Special, s d Clapcote Leader.

V.H.C.—F. HAROLD TURNBULL, Lower House Farm, Llantwit Major, near Cardiff, **Llantwit Isaac** (5638), born 9th January, 1926; s Llantwit Duke (5346), d Llantwit Irene (X.466), s d Holmwood Dandy (5245).

CLASS 218.—*Gloucestershire Old Spots Boar, farrowed on or before July 1st, 1926.* [5 entries.]

I. (£7.)—W. T. & A. G. BAILEY, Grist House Farm, Hemel Hempstead, **Hempstead Jim 6th** (5733), born 3rd July, 1926; s Hempstead General (5498), d Hempstead Daphne 4th (X.541), s d Nashes Major 1st (4945).

II. (£4.)—REV. G. B. HICKS, Downside Abbey, near Bath, **Downside Earl**, born 22nd July, 1926; s Downside Sargent, d Downside Judy, s d Downside Blanche Clevehill Captain.

III. (£2.)—BENNETT & HOWARD, Thornbury, Glos., **Thornbury Basil** (5727), born 1st February, 1927; s Maiden Bradley Doctor (5599), d Thornbury Baroness (X.489), s d Huntingford Dauntless (5475).

R.—SHERRIFF & SONS, Lemsford, Hatfield, Herts, **Nashes Duke 13th** (5736), born 4th January, 1927; s Eastacott Defiance (5607), d Naches Duchess 27th (X.497), s d Nashes Premier 2nd (5423).

V.H.C.—JAMES D. BEAK, Maiden Bradley, near Bath, **Maiden Bradley Titanic**, born 2nd August, 1926; s Thornbury Bison, d Maiden Bradley Wonder, s d Clapcote Madoc.

CLASS 219.—*Gloucestershire Old Spots Breeding Sow, farrowed before 1926.* [7 entries.]

I. (£10.)—JAMES D. BEAK, Maiden Bradley, near Bath, **Maiden Bradley Wonder**, born 10th May, 1925; s Clapcote Madoc, d Maiden Bradley Maid 2nd, s d Ashton Dapper.

II. (£5.)—SHERRIFF & SONS, Lemsford, Hatfield, Herts, **Nashes Blossom 23rd** (X.527), born 16th March, 1925; s Ayot Premier (4871), d Nashes Blossom 2nd (15718), s d Nashes Duke (3068).

III. (£2.)—SIDNEY T. WHITE, Sock Dennis Farm, Ilchester, **Sock Blossom** (X.704), born 14th February, 1925; s Maiden Bradley Dick (4743), d Sock Snowdrop (17402), s d Bagborough Charm 52 (4745).

Prizes awarded to Gloucestershire Old Spots Pigs. lxxxiii

R.—F. HAROLD TURNBULL, Lower House Farm, Llantwit Major, near Cardiff. **Llantwit Beatrice** (X.207), born 22nd October, 1923; s Dorset Baronet (4828), d Thornbury Beaver (15780), s d Ashton Bloomer (1741).

V.H.C.—Rev. G. B. HICKS, Downside Abbey, near Bath. **Downside Jane**, born 26th March, 1924; s Ayot Peter Pan, d Downside Blanche, s d Clevehill Captain.

CLASS 220.—*Gloucestershire Old Spots Breeding Sow, farrowed in 1926.* [15 entries.]

I. (£10.) STANLEY HUGH BADOCK, Holmwood, Westbury-on-Trym, Bristol. **Holmwood Dream** (X.847), born 7th February, 1926; s Thornbury Buffalo (5542), d Holmwood Lily 3rd (X.543), s d Eastacott Roger (5393).

II. (£5.)—BENNETT & HOWARD, Thornbury, Glos., **Thornbury Banana** (2053), born 6th August, 1926; s Maiden Bradley Doctor (5599), d Thornbury Bar-Six (X.232), s d Ayot Page (5069).

III. (£2.)—W. T. & A. G. BAILEY, Grist House Farm, Hemel Hempstead. **Hempstead Daphne 13th** (X.759), born 1st January, 1926; s Hempstead General (5498), d Hempstead Daphne 3rd (X.540), s d Nashes Major 1st (4945).

R. JAMES D. BEAK, Maiden Bradley, near Bath. **Maiden Bradley Stylish 5th**, born 1st March, 1926; s Clapcote Madoc, d Maiden Bradley Dolly 3rd, s d Clapcote Leader.

V.H.C. W. T. & A. G. BAILEY, **Hempstead Daphne 18th** (Z.044), born 3rd July, 1926; s Hempstead General (5498), d Hempstead Daphne 4th (X.541), s d Nashes Major 1st (4945).—HIATT C. BAKER, Oaklands, Almondsbury, Glos., **Oaklands Jean 4th**, born 1st August, 1926; s Homewood Roger, d Oaklands Jean, s d Sunnyfield Knut 2nd.—BENNETT & HOWARD, Thornbury, Glos., **Thornbury Beryl** (X.779), born 9th February, 1926; s Huntingford Dauntless (5475), d Thornbury Bar-Six (X.232), s d Ayot Page (5069).

H.C. BENNETT & HOWARD, **Thornbury Bindweed** (2054), born 6th August, 1926; s Maiden Bradley Doctor (5599), d Thornbury Bar-Six (X.232), s d Ayot Page (5069).—Major ROBERT FLEETWOOD FULLER, Great Chalfield, Melksham, **Chalfield Brambling** (Z.013), born 5th August, 1926; s Thornbury Bison (5554), d Chalfield Gnat (X.652), s d Chalfield Herald (5320).—SHERRIFF & SONS, Lemsford, Hatfield, Herts, **Nashes Duchess 32nd** (X.798), born 2nd January, 1926; s Pevensy Bruce (13597), d Nashes Duchess 20th (239), s d Dorset Diver (4401).

C. HIATT C. BAKER, **Oaklands Josephine 2nd**, born 18th July, 1926; s Holmwood Roger, d Ithells Josephine 46th, s d Huntingford Dauntless.—T. KING, Lower Barnes, Wotton-under-Edge, Glos., **Ithells Josephine 51st**, born 5th July, 1926; s Eastacott Rufus (5570), d Ithells Josephine 47th (X.661), s d Huntingford Dauntless (5457).—SIDNEY T. WHITE, Sock Dennis Farm, Ilchester, **Sock Sunshine**, born 7th September, 1926; s Winterbourne Albert (5563), d Sock Blossom (X.704), s d Maiden Bradley Dick (4743).

CLASS 221.—*Pair of Gloucestershire Old Spots Breeding Sows, farrowed in 1927.* [7 entries.]

I. (£7.)—W. T. & A. G. BAILEY, Grist House Farm, Hemel Hempstead, **Hempstead Daphne 20th** and **Hempstead Daphne 21st**, born 4th January; s Hempstead General (5498), d Hempstead Daphne 2nd (17854), s d Clevehill Jim (4757).

II. (£4.)—Ditto, ditto, **Hempstead Daphne 22nd** (Z.048), and **Hempstead Daphne 23rd** (Z.049), born 4th January; s Hempstead General (5498), d Hempstead Daphne 3rd (X.540), s d Nashes Major 1st (4945).

III. (£2.)—HERBERT W. BERRY, Blackmoor Farm, Langford, near Bristol, **Langford Princess 6th** (Z.062), and **Langford Princess 7th** (Z.063), born 2nd January; s Langford Spotted Dick 5th (5582), d Langford Princess 5th (X.472), s d Langford Field Marshall 2nd (4166).

R.—SHERRIFF & SONS, Lemsford, Hatfield, Herts, **Nashes Duchess 37th** and **38th** (Z.055 and Z.056), born 4th January; s Eastacott Defiance (5607), d Nashes Duchess 27th (X.497), s d Nashes Premier 2nd (5423).

V.H.C.—F. HAROLD TURNBULL, Lower House Farm, Llantwit Major, near Cardiff, **Llantwit Blonde** and **Llantwit Baroness**, born 27th January; s Patchway Mick (5671), d Llantwit Bertha (X.206), s d Dorset Baronet (4828).

H.C.—Ditto, ditto, **Llantwit Ample** and **Llantwit Agnes**, born 5th January; s Clapcote Mike (5522), d Llantwit Anice (X.581), s d Llantwit Duke (5346).

CHAMPION PRIZES.

GIVEN THROUGH THE GLOUCESTERSHIRE OLD SPOTS PIG SOCIETY.

The Sir George Watson Challenge Cup, value £21, for the best Animal in the Gloucestershire Old Spots Classes. [The Cup to be won three times by the same Exhibitor with different Animals before becoming his own property.]

I.—STANLEY HUGH BADOCK, Holmwood, Westbury-on-Trym, Bristol, **Holmwood Dream** (X.847), born 7th February, 1926; s Thornbury Buffalo (5542), d Holmwood Lily 3rd (X.543), s d Eastacott Roger (5393).

R.—JAMES D. BEAK, Maiden Bradley, near Bath, **Maiden Bradley Judge**, born 10th May, 1925; s Clapcote Madoc, d Maiden Bradley Maid 2nd, s d Ashton Dapper.

The Turnbull Cup, value £14 14s. for the best Boar in the Gloucestershire Old Spots Classes. [The Cup to be won twice by the same Exhibitor with different Animals before becoming his own property.]

I.—JAMES D. BEAK, Maiden Bradley, near Bath, **Maiden Bradley Judge**, born 10th May, 1925; s Clapcote Madoc, d Maiden Bradley Maid 2nd, s d Ashton Dapper.

R.—STANLEY HUGH BADOCK, Holmwood, Westbury-on-Trym, Bristol, **Holmwood Lilywhite** (5650), born 7th February, 1926; s Thornbury Buffalo (5542), d Holmwood Lily 3rd (X.543), s d Eastacott Roger (5393).

GIVEN BY MESSRS. BENNETT AND HOWARD.

The Sir John Anderson Cup for the best Sow in Classes 219 to 221. [The Cup to be won three times by the same Exhibitor before becoming his own property.]

I.—STANLEY HUGH BADOCK, Holmwood, Westbury-on-Trym, Bristol, **Holmwood Dream** (X.847), born 7th February, 1926; s Thornbury Buffalo (5542), d Holmwood Lily 3rd (X.543), s d Eastacott Roger (5393).

R.—JAMES D. BEAK, Maiden Bradley, near Bath, **Maiden Bradley Wonder**, born 10th May, 1925; s Clapcote Madoc, d Maiden Bradley Maid 2nd, s d Ashton Dapper.

WESSEX SADDLEBACK.

(£15 towards the Prizes in these Classes and the Gold Medal were given by the Wessex Saddleback Pig Society.

CLASS 222.—*Wessex Saddleback Boar, farrowed before July 1st, 1926.*
[8 entries.]

I. (£10.)—DOUGLAS VICKERS, Temple Dinsley, Hitchin, Herts. **Preston Senator 1st** (Herd Book No. 2765), born 24th July, 1925; s Oakley Prior (1678), d Preston Sunbeam 1st (7291), s d Norman King Offa (219).

II. (£5.)—R. B. TAYLOR & SONS, Hendford Lodge, Yeovil, **Sockhill Spartan** (1876), born 16th April, 1923; s Sockhill Orpheus (857), d Eastington Salome (274).

III. (£2.)—SIR ALFRED MOND, Bart., Melchet Court, Romsey, Hants. **Melchet Premier 4th** (2873), born 14th May, 1926; s Melchet Premier (2452), d Melchet Dinah 10th (5278), s d Melchet Donegal (355).

R.—HUGH LONSDALE BROOKSBANK, Sandrock, Tickhill, Yorks. **Sherwood Marquis**, born 3rd January, 1926, bred by F. Rowe, Cavendish Lodge, Edwinstowe, Notts; s Slythhurst Present King (2361), d Sherwood Duchess 12th (9873), s d Coker Success (792).

CLASS 223.—*Wessex Saddleback Boar, farrowed on or after July 1st, 1926.* [4 entries.]

I. (£7.)—DOUGLAS VICKERS, Temple Dinsley, Hitchin, Herts. **Preston Oracle 1st** (Herd Book No. 2961), born 2nd July, 1926; s Oakley Prior (1678), d Preston Oak 2nd (12203), s d Royston Cicero (1530).

II. (£4.)—HORACE HENRY HARRIS, New Farm, Besford, Worcester. **Besford Colonel** (2940), born 3rd July, 1926; s Southercroft Stonecracker (2690), d Besford Brenda (10988), s d Purbeck Gambler (1435).

III. (£2.)—J. B. HAM, Acacia House, Upper Weare, Axbridge, Som., **Allerton Kingmaker** (2929), born 18th July, 1926; s Coker Count (2609), d Allerton Countess (12596), s d Badgworth Norman 2nd (2283).

R.—R. B. TAYLOR & SONS, Hendford Lodge, Yeovil, **Sockhill Fountain**, born 22nd September, 1926; s Sockhill Spartan (1876), d Eastington Frivolous (8758), s d Eastington Rowan (735).

CLASS 224.—*Wessex Saddleback Breeding Sow, farrowed before 1926.*
[11 entries.]

I. (£10) and Reserve for Medal*—R. B. TAYLOR & SONS, Hendford Lodge, Yeovil, **Sockhill Snow-white 4th** (11336), born 17th January, 1924; s Eastington Rowan (735), d Sockhill Snow-white (5828), s d Sockhill Pindarus (860).

II. (£5.)—DOUGLAS VICKERS, Temple Dinsley, Hitchin, Herts. **Preston Vain** (Herd Book No. 12274), born 6th January, 1925; s Norman King Offa (219), d Harpenden Vanity 2nd (8531), s d Brooke Prince (625).

*A Gold Medal, value £5 5s., for the best Pig exhibited in the Wessex Saddleback Classes and a Silver Medal to the Breeder who was not the exhibitor of the Animal winning the Gold Medal.

III. (£2.)—R. B. TAYLOR & SONS, **Eastington Clover** (11883), born 20th July, 1924, bred by Miss Donisthorpe, Upton on Severn; s Eastington Trefoil (1578), d Ringdove of Eastington (3583), s d Melchet Lieutenant (120).

R. Sir ALFRED MOND, Bart., Melchet Court, Romsey, Hants, **Melchet Winter 22nd** (12090), born 19th September, 1924; s Melchet Stephen 6th (1698), d Melchet Winter 11th (2440), s d Melchet Prince (155).

H.C.—J. P. HARVEY & CO., LTD., Kidderminster, **Godalming Mollie 5th**, born 18th June, 1924, bred by A. A. Freeland, Godalming, Surrey; s Godalming Major 2nd (1742), d Godalming Mollie (5491).

CLASS 225.—*Wessex Saddleback Breeding Sow, farrowed in 1926.*
[7 entries.]

I. (£7) and Medal*—DOUGLAS VICKERS, Temple Dinsley, Hitchin, Herts, **Preston Dorothy** (Herd Book No. 13534), born 2nd January; s Preston Sphinx 1st (2628), d Preston Dora 1st (12204), s d Preston Prince (1767).

II. (£4.)—HUGH LONSDALE BROOKSBANK, Sandrock, Tickhill, Yorks, **Sherwood Marchioness**, born 3rd January, bred by F. Rowe, Cavendish Lodge, Edwinstowe, Notts; s Slythehurst Present King (2361), d Sherwood Duchess 12th (9873), s d Coker Success (792).

III. (£2.)—J. P. HARVEY & CO., LTD., Kidderminster, **Redbourne Actress 2nd** (13713), born 7th March, bred by Alex Weatherhead, Redbourne Bury, St. Albans; s Eastington Cossack, d Harpenden Bess 1st, s d Harpenden Premier.

R.—HORACE HENRY HARRIS, New Farm, Besford, Worcester, **Besford Brenda 8th** (13914), born 9th January; s Shillinglee Swell (2002), d Besford Brenda 2nd (10988), s d Purbeck Gambler (1435).

CLASS 226.—*Pair of Wessex Saddleback Breeding Sows, farrowed in 1927.* [6 entries.]

I. (£7.)—HORACE HENRY HARRIS, New Farm, Besford, Worcester, **Besford Rose's 17th and 18th** (13915 and 13916), born 15th January; s Offa Hero 1st (1914), d Besford Rose 13th (13043), s d Shillinglee Swell (2002).

II. (£4.)—J. P. HARVEY & CO., LTD., Kidderminster, **Hoglett Eleanor 1st and 2nd**, born 3rd January; s Offa Hero (1897), d Mere Astor 7th (13121), s d Besford Acrobat (2604).

III. (£2.)—DOUGLAS VICKERS, Temple Dinsley, Hitchin, Herts, **Preston Onyx 1st and 2nd**, born 20th January; s Oakley Prior (1678), d Preston Oak 2nd (12203), s d Royston Cicero (1530).

R.—J. P. HARVEY & CO., LTD., **Hoglette Rose 1st and 2nd**, born 2nd January; s Offa Hero (1897), d Mere Astor 6th (13120), s d Besford Acrobat (2604).

*A Gold Medal, value £5 5s., for the best Pig exhibited in the Wessex Saddleback Classes and a Silver Medal to the Breeder who was not the exhibitor of the Animal winning the Gold Medal.

NATIONAL LONG WHITE LOP-EARED.

(£20 towards the Prizes in these Classes were given by the National Long White Lop-Eared Pig Society).

CLASS 227.—*Long White Lop-Eared Boar, farrowed before July 1st, 1926.*—[1 entry.]

I. (£10.)—HENRY J. KINGWELL, Bow Grange, Totnes, Devon, **Yealmpstone Model** (1154), born 14th February, 1926, bred by Mr. Neal, Yealmpston, Plympton; s Yealmpston Sunday (958), d Harberton Butterfly (1023), s d Netherton Gay Boy (18).

CLASS 228.—*Long White Lop-Eared Boar, farrowed on or before July 1st, 1926.* [4 entries].

I. (£7.)—W. J. WESTLAKE, Godwell, Ivybridge, Devon, **Godwell Sultan 3rd** (1324), born 24th July, 1926, bred by E. Westlake & Son, Godwell, Ivybridge, Devon; s Harberton Honour (1152), d Lumburn Lily (2847), s d Wooda Confidence (272).

II. (£4.)—W. WOOLLAND, Baydon Manor, Ramsbury, Wilts, **Lukesland Peter**, born 10th July, 1926, bred by G. H. Shephard, Lukesland, Harford, Ivybridge, Devon; s Yealmpstone Ben 5th, d Lukesland Molly (2977), s d Lukesland Hero (342).

III. (£2.)—GEORGE HY. EUSTICE, Bezurell, Gwinear, Hayle, Cornwall, **Bezurrell Monarch**, born 4th October, 1927; s Trovris Bruno 2nd (1138), d Bezurrell Tulip 3rd (3791), s d Tracy Wonderment (180).

R.—ARCHIBALD HART, Heathfield Tower, E. Sussex, **Sussex Conqueror** (1360), born 3rd July, 1926; s Netherton Gladiator (794), d Wizaller Snowflake 8th (839), s d Netherton Subaltern (44).

CLASS 229.—*Long White Lop-Eared Breeding Sow, farrowed before 1926.* [3 entries.]

I. (£10.)—W. J. WESTLAKE, Godwell Ivybridge, Devon, **Godwell Beauty** (3391), born 26th January, 1925; s Ipplepen Sultan (552), d Colwill Bobby (3205), s d Harberton Primer.

II. (£5.)—ARCHIBALD HART, Heathfield Tower, E. Sussex, **Wizaller Snowflake 8th** (839), born 19th May, 1922, bred by N. J. Jackson, Wizaller, Modbury, Devon; s Netherton Subaltern (44), d Wizaller Snowflake (87).

lxxxviii *Prizes awarded to National Long White Lop-Eared
and Bacon Pigs.*

CLASS 230.—*Long White Lop-Eared Breeding Sow, farrowed in 1926.*
[5 entries.]

I. (£7.) W. J. WESTLAKE, Godwell, Ivybridge, Devon, **Godwell Butterfly 4th** (4129), born 2nd January, bred by J. Westlake & Son, Godwell, Ivybridge; s Yealmpstone Ben (938), d Godwell Beauty 5th (3763), s d Ipplepen Sultan (552).

II. (£4.) W. WOOLLAND, Baydon Manor, Ramsbury, Wilts, **Devonshire Duchess 6th** (4775), born 24th March, 1926, bred by H. J. Kingwell, Bow Grange, Totnes, Devon; s Yealmpstone Sunday (958), d Devonshire Duchess (2165), s d Yealmpstone Pan Yan (148).

III. (£2.)—W. J. WESTLAKE, **Godwell Beauty 6th**, born 6th July, bred by W. J. Westlake & Son, Godwell, Ivybridge; s Yealmpstone Ben 3rd (938), d Colwill Bobby, s d Harberton Premier (86).

R.—ARCHIBALD HART, Heathfield Tower, E. Sussex, **Lumburn Lily 12th** (4145), born 8th January, bred by J. H. Bickell, Lumburn, Tavistock, Devon; s Monkstone Perfection (912), d Bickleigh Lily (1517), s d Bickham Ambassador (40).

CLASS 231.—*Pair of Long White Lop-Eared Breeding Sows, farrowed
in 1927.* [3 entries.]

I. (£7.) W. J. WESTLAKE, Godwell, Ivybridge, Devon, **Godwell Beauty 7th and 8th**, born 3rd January, bred by W. J. Westlake & Son, Godwell, Ivybridge, Devon; s Yealmpstone Ben 3rd (938), d Colwill Bobby (3205), s d Harberton Premier (86).

II. (£4.)—GEORGE HENRY EUSTICE, Bezurrell, Gwinear, Hayle, **Bezurrell Mary 1st and Bezurrell Mary 2nd**, born 3rd January; s Afton Gay Boy (1122), d Bezurrell Mary (4093), s d Netherton Eminence (174).

BACON PIGS.

CLASS 232.—*Pair of Pigs of any breed or first cross [the cross to be
stated] between 9 score 10lbs. and 11 score 10lbs. live weight each,
best suitable for the Wiltshire cut of Bacon.* [6 entries.]

I. (£7.)—VISCOUNT FOLKESTONE, Estate Office, Longford Castle, Salisbury, Large White and Gloucester Spot Cross, born October, 1926.

II. (£4.) S. D. TUCKER & SONS, Grove Farm, Whaddon, Trowbridge, Large and Middle Whites.

III. (£2.)—S. D. TUCKER & SONS, Manor Farm, Holt, Wilts, Large and Middle Whites.

R.—H. W. PANES, The Down Farm, Mells, Frome, Large Whites.

All Pigs in this Class were purchased at the current market price by Messrs. Bowyers [Wiltshire Bacon] Limited, Trowbridge, who removed them from the Show, killed, and cured the carcasses. Additional prizes were then awarded for the Best Bacon after curing. [6 entries.]

I. (£3.) - S. D. TUCKER & SONS, Grove Farm, Whaddon, Trowbridge, Large and Middle Whites.

II. (£2.) - S. D. TUCKER & SONS, Manor Farm, Holt, Wilts, Large and Middle Whites.

III. (£1.) - VISCOUNT FOLKESTONE, Estate Office, Longford Castle, Salisbury, Large White and Gloucester Spot Cross, born October, 1926.

(Given by the Bath Local Committee. - Open only to Residents within a radius of 30 miles of the Guildhall, Bath).

CLASS 233.—*Pair of Pigs of any breed or first cross [the cross to be stated], most suitable for Wiltshire Bacon. [5 entries.]*

All Pigs in this Class were purchased at the Market price by Messrs. Bowyers [Wiltshire Bacon] Ltd.

I. (£7) and Special* - H. W. PANES, The Down Farm, Mells, Frome, Large Whites.

II. (£4.)—S. D. TUCKER & SONS, Manor Farm, Holt, Wilts, Large and Middle Whites.

III. (£2.) - S. D. TUCKER & SONS, Grove Farm, Whaddon, Trowbridge, Large and Middle Whites.

R.—Colonel F. S. KENNEDY SHAW, C.B.E., Teffont Magna, Salisbury, Large White and Gloucester Old Spots, born 27th September.

*Special Prize given by Messrs. Bowyers (Wiltshire Bacon) Ltd., Trowbridge, a Silver Cup, value £10 10s., for the best Exhibit, either pure bred Large White or Cross Bred by a Large White Boar in Class 233.

PRODUCE.

CIDER.

CLASS 234.—*Novice Class. Cask of not less than 9 and not more than 30 gallons of Cider made in 1926 by an Exhibitor who had not previously taken a first prize in any public exhibition. [9 entries.]*

- I. (£5.)—WICKWAR CIDER CO (LD.).
- II. (£3.)—WICKWAR CIDER CO. (LD.).
- III. (£2.)—J. WHELPTON.
- R.—WICKWAR CIDER CO. (LD.).

CLASS 235.—*Cask of not less than 9 and not more than 30 gallons of Cider, made in 1926, of a specific gravity not exceeding 1.015 at 60 deg. Fahr. [11 entries.]*

- I. (£5.)—H. J. DAVIS.
- II. (£3.)—R. N. COATE & CO. (LD.).
- III. (£2.)—H. J. DAVIS.
- R.—WICKWAR CIDER CO. (LD.).

CLASS 236.—*12 Quart Bottles of Cider, made in 1926, of a specific gravity not exceeding 1.015 at 60 deg. Fahr. [14 entries.]*

- I. (£5.)—H. J. DAVIS.
- II. (£3.)—PULLIN BROS.
- III. (£2.)—TILLEY BROS.
- R.—H. J. DAVIS.
- V.H.C.—WICKWAR CIDER CO. (LD.).

CLASS 237.—*Cask of not less than 9 and not more than 30 gallons of Cider, made in 1926. [14 entries.]*

- I. (£5.)—H. WINTER.
- II. (£3.)—H. J. DAVIS.
- III. (£2.)—WICKWAR CIDER CO. (LD.).
- R.—R. N. COATE & CO. (LD.).
- V.H.C.—H. C. HANCOCK.
- H.C.—TILLEY BROS.

CLASS 238.—12 *Quart Bottles of Cider, made in 1926.* [17 entries.]

I. (£5.)—WICKWAR CIDER CO. (LD.)

II. (£3.)—H. J. DAVIS.

III. (£2.)—TILLEY BROS.

R.—D. PHILLIPS-MORGAN.

C.—E. W. LANGFORD (LD.).—D. PHILLIPS-MORGAN.—PULLIN BROS.

CLASS 239.—12 *Quart Bottles of Cider, made in any year previous to 1926.* [5 entries.]

I. (£5.)—PULLIN BROS.

II. (£3.)—PULLIN BROS.

III. (£2.)—D. PHILLIPS-MORGAN.

R.—H. J. DAVIS.

CHEESE.

(These Classes were not open to Professional Teachers).

CLASS 240.—*Three Cheddar Cheeses [not less than 56lbs. each] made in 1926.* [27 entries.]

I. (£15.)—F. PORTCH.

II. (£10.)—E. J. SAGE.

III. (£5.)—C. H. BUTT.

R.—F. G. NURSE & SON.

V.H.C.—S. T. WHITE.

H.C.—W. H. COLLINS.—R. S. DUDDEN.—H. H. PICKFORD.—J. P. PINCHIN, Mrs. S. J. STEEDS.

C.—H. HILL.

CLASS 241.—*Three Cheddar Cheeses [not over 56lbs. each], made in 1926.* [13 entries.]

I. (£10.)—F. PORTCH.

II. (£7.)—Mrs. S. J. STEEDS.

III. (£4.)—W. H. COLLINS.

R.—H. H. PICKFORD.

V.H.C.—G. R. COLE.—Mrs. C. NAISH.

CLASS 242.—*Four Loaf or other Truckle Cheeses, made in 1926,* [15 entries.]

I. (£5.)—F. PORTCH.

II. (£3.)—G. BARNES.

III. (£2.)—MRS. S. J. STEEDS.

R.—S. T. WHITE.

V.H.C.—G. R. COLE.—H. H. PICKFORD.

H.C.—W. H. COLLINS.

CLASS 243.—*Three Double Gloucester Cheeses, made in 1926.* [2 entries.]

I. (£6.)—H. H. PICKFORD.

R.—MRS. W. HAINE.

CLASS 244.—*Three Single Gloucester Cheeses made in 1926—First prize, £5—second, £3—third, £2.*

[No ENTRY.]

CLASS 245.—*Three Caerphilly Cheeses, made in 1927.* [13 entries.]

I. (£5.) CHEDDAR VALLEY DAIRY CO.

II. (£3.)—T. WILKINS.

III. (£2.) MRS. C. NAISH.

V.H.C.—C. H. RAYMOND.—W. SPRATT.

H.C.—H. HILL.

(The Prizes in Classes 246 and 247 were given by the Somerset County Agricultural Committee).

CLASS 246.—*Three Cheddar Cheeses, made by Persons who had received instructions provided by the Somerset County Council.* [9 entries.]

I. (£6.)—F. G. NURSE & SONS.

II. (£3.)—F. G. LONGMAN.

III. (£2.)—T. J. COLLINGS.

IV. (£1.)—W. H. CORP.

R.—C. H. BUTT.

CLASS 247.—*Three Caerphilly Cheeses, made by Persons who had received instructions in Cheese Making provided by the Somerset County Council.* [7 entries.]

I. (£5.)—C. H. RAYMOND.

II. (£3.)—W. SPRATT.

III. (£1.)—MISS S. HEMBURY.

V.H.C.—S. REEVES.

CREAM CHEESE, BUTTER AND CREAM.

(These Classes were not open to Professional Teachers).

CLASS 248.—*Three Cream or other Soft Cheeses.* [7 entries.]

- I. (£3.)**—Miss J. PANTALL.
- II. (£2.)**—Col. E. H. W. BOLITHO.
- III. (£1.)**—Mrs. L. LEARMOUTH.
- R.**—Miss G. M. M. COUSENS.

CLASS 249.—*2lbs. of Fresh [or very slightly salted] Butter.* [35 entries.]

- I. (£4.)**—Mrs. G. BLACKLER.
- II. (£3.)**—Mrs. L. R. MILDON.
- III. (£2.)**—Mrs. M. HEYWOOD.
- IV. (£1.)**—Miss D. CANE.
- R.**—J. NORTHCOTT.
- V.H.C.**—Mrs. J. WAY.
- H.C.**—Mrs. E. COWLING.
- C.**—Mrs. W. H. MITCHELL.

CLASS 250.—*2lbs. of Butter, in the making of which no salt had been used, to be judged on the last day of the Show.* [27 entries.]

- I. (£4.)**—Mrs. M. HEYWOOD.
- II. (£3.)**—Mrs. L. R. MILDON.
- III. (£2.)**—J. NORTHCOTT.
- IV. (£1.)**—Mrs. L. MATTHEWS.
- R.**—Col. E. H. W. BOLITHO.
- V.H.C.**—Mrs. G. BLACKLER.

CLASS 251.—*12lbs. of Keeping Butter, in a jar or crock, delivered to the Secretary 4 weeks before the Show.* [10 entries.]

- I. (£5.)**—Mrs. L. R. MILDON.
- II. (£4.)**—A. F. SOMERVILLE.
- III. (£3.)**—R. NEVILLE GRENVILLE.
- R.**—Mrs. M. HEYWOOD.
- V.H.C.**—Mrs. A. A. BERE.

CLASS 252.—*Four half-pounds of Scalded Cream.* [7 entries.]

- I. (£3.)**—Mrs. L. R. MILDON.
- II. (£2.)**—W. WHITE & SONS.
- III. (£1.)**—Mrs. E. A. TINNEY.
- R.**—W. WHITE & SONS.

COMPETITIONS.

BUTTER-MAKING.

(No winner of a First Prize given by this Society for Butter-making during the last three years was eligible to compete in Classes 253 to 255).

CLASS 253.—*Novice Class. Butter-making by Competitors who had not hitherto won a prize for Butter-making at the London Dairy Show or the Shows of the Royal Agricultural or Bath and West Society. On the 1st day of the Show. [11 entries.]*

I. (£4.)—Miss J. RIDLER.

II. (£3.)—Miss K. ROWE.

III. (£1 10s.)—Miss E. M. GAYLARD.

IV. (£1.)—Miss R. HANCOCK.

R.—Miss E. F. MATTINSON.

V.H.C.—Miss A. M. DINGLE.

CLASS 254.—*Butter-making by Men and Women, bona fide workers on a farm. On the 2nd day of the Show. [15 entries.]*

I. (£4.)—Miss K. ROGERS.

II. (£3.)—Miss R. M. GWILLIM.

III. (£1 10s.)—Miss JESSIE M. SELDON.

IV. (£1.)—Miss N. B. MITCHELL.

R.—Miss E. HOLLOWAY.

V.H.C.—Mrs. J. MARFELL.

CLASS 255.—*Butter-making by Students who had been through a course of instruction in Butter-making at any County Council School, and who had not previously won a first or second prize at one of the Society's Shows. On the 3rd day of the Show. [17 entries.]*

I. (£4.)—Miss K. ROWE.

II. (£3.)—Miss N. B. MITCHELL.

III. (£1 10s.)—Miss C. D. CARDELL.

IV. (£1.)—Miss S. DAVIES.

R.—Miss H. A. CRAGO.

V.H.C.—Miss D. CANE.

H.C.—Miss M. K. DINGLE.

CLASS 256.—*Butter-making for Men and Women. On the 4th day of the Show.* [19 entries.]

- I. (£4.)—Miss R. E. MITCHELL.
- II. £3.)—Miss K. DAVIS.
- III. (£1 10s.)—Miss D. E. NICHOLAS.
- IV. (£1.)—Miss R. M. GWILLIM.
- R.—Miss K. ROGERS.
- V.H.C.—Mrs. A. MORGAN.
- H.C.—Miss F. SCOTT.

CLASS 257.—*Butter-making by Winners of First and Second Prizes in the Butter-making Classes 253 to 256, or at any previous meeting of the Society. On the 5th day of the Show.* [10 entries.]

- I. (Gold Medal).—Miss R. E. MITCHELL.
- II. (Silver Medal).—Miss K. DAVIS.
- III. (Bronze Medal).—Miss D. E. NICHOLAS.
- R.—Miss R. M. GWILLIM.

MILKING.

CLASS 258.—*For Men and Women, without restrictions as to age.* [13 entries.]

- I. (£3.)—Miss I. WHITE.
- II. (£2.)—V. HARNEY.
- III. (£1.)—R. PRENTICE.
- R.—H. GULLEY.
- C.—F. COMLEY.

(The Prizes in Classes 259 and 260 were given by the Somerset County Education Committee and Mr. A. F. Somerville).

CLASS 259.—*Milking by Boys attending Elementary Schools who had received instruction under the Somerset County Council.* [7 entries.]

- I. (£1 10s.)—M. WATTS.
- II. (£1.)—J. CRIDDLE.
- III. (10s.)—E. PERRY.
- R.—G. WATKINS.

CLASS 260.—*Milking by Boys attending Elementary Schools who had received instruction under the Somerset County Council.* [7 entries.]

- I. (£1 10s.)—P. BAKER.
- II. (£1.)—D. CLARK.
- III. (10s.)—A. PIPE.
- R.—C. WATTS.

SHOEING.

CLASS 261.—*Cart Mare Shoeing by Smiths. On the 3rd day of the Show. [15 entries.]*

I. (£4.)—H. W. BURDEN, R.S.S.

II. (£3.)—J. C. PRICE, A.F.C.L.

III. (£2.)—J. C. PRINT, A.F.C.L.

IV. (£1.)—O. HIGGINS.

R.—J. HILL.

V.H.C.—T. FELTHAM, A.F.C.L.

“*The Capewell Challenge Cup*” offered by the Capewell Horse Nail Co., (Ltd.) for the best Competitor in Class 261. The Cup to be won 3 years in succession or 4 times in all before becoming the absolute property of the winner.

I.—H. W. BURDEN.

CLASS 262.—*For Hunter Shoeing by Smiths. On the 4th day of the Show. [13 entries.]*

I. (£4.)—J. C. PRINT, A.F.C.L.

II. (£3.)—J. C. PRICE, A.F.C.L.

III. (£2.)—J. HILL.

IV. (£1.)—T. FELTHAM, A.F.C.L.

R.—W. L. MEDLAND.

Challenge Cup, offered by Messrs. William Martin, Sons and Co., “Dundyvan” Iron and Steel Works, Coatbridge, per Godwin, Warren and Co., Ltd., Bristol, for the Best Competitor in Class 262.

I.—J. C. PRINT, A.F.C.L.

CLASS 263.—*For Shoemaking or Turning by Smiths. On the 5th day of the Show. [13 entries.]*

I. (£4.)—J. C. PRINT, A.F.C.L.

II. (£3.)—W. L. MEDLAND.

III. (£2.)—J. HILL.

IV. (£1.)—J. C. PRICE, A.F.C.L.

R.—H. W. BURDEN, R.S.S.

V.H.C.—O. HIGGINS.

An All-Bright “Godwin” Shoe Turning Hammer, by Messrs. Godwin Warren and Co., for the Best Competitor in Class 263.

I.—W. L. MEDLAND.

SPECIAL LOCAL PRIZES.

GIVEN BY THE SOMERSET COUNTY AGRICULTURAL COMMITTEE.

Best Competitors in Class 261, resident in Somerset. [3 entries.]

I. (£3.)—H. W. BURDEN, R.S.S.

II. (£2.)—H. B. WELLAND.

Best Competitors in Class 262, resident in Somerset. [2 entries.]

I. (£3.)—H. W. BURDEN, R.S.S.

II. (£2.)—H. B. WELLAND.

Best Competitors in Class 263, resident in Somerset. [3 entries.]

I. (£3.)—H. W. BURDEN, R.S.S.

II. (£2.)—H. B. WELLAND.

POULTRY.

(UNDER POULTRY CLUB RULES).

(The Birds in Classes 1 to 45 and 56 to 57 must have been hatched previous to January 1st, 1927).

CLASS 1.—ANY TWO PURE BREEDS, BEST MATED TO CROSS FOR PRODUCING TABLE POULTRY.—COCK AND 3 HENS, BRED IN 1925 OR 1926, THE PROPERTY OF ONE EXHIBITOR. [7 entries.]

I. (£3.)—LORD DEWAR.

II. (£2.)—J. H. BAKER & SON, *Indian Game*—*Light Sussex*.

III. (£1.) A. J. MAJOR, *Dorking Game*.

R. C. HARDY, *Brown*—*Light Sussex*.

CLASS 2.—COCHIN OR BRAHMA, COCK OR HEN. [9 entries.]

I. (£1 10s.)—LORD DEWAR, *Buff Cochin*.

II. (£1.)—W. H. BREWER.

III. (10s.)—R. M. THOMAS, *Brahma*.

R.—G. LANE, *Cochin*.

V. H. C.—H. L. POPHAM, *Brahma*.

H.C.—BROOKS BROS., *Cochin*.

CLASS 3.—PLYMOUTH ROCK (BARRED), COCK. [9 entries.]

I. (£1 10s.)—W. H. BREWER.

II. (£1.)—W. COURT.

III. (10s.)—W. COURT.

R.—MRS. W. J. JACKA.

V.H.C.—W. E. DANTON. —T. ROSKELLY.

H.C.—A. J. WILLIAMS.

CLASS 4.—PLYMOUTH ROCK (BARRED), HEN. [10 entries.]

I. (£1 10s.)—MRS. W. G. JACKA.

II. £1.)—W. COURT.

III. (10s.)—A. J. WILLIAMS.

R.—W. COURT.

H.C.—P. A. WITCOMBE.

CLASS 5.—PLYMOUTH ROCK (ANY OTHER VARIETY), COCK.
[7 entries.]

I. (£1 10s.)—W. H. BREWER.

II. (£1.)—J. LIPPIATT.

III. (10s.) —H. J. SCREECH.

R. —MRS. J. A. DREW.

V.H.C. —J. LIPPIATT.—P. A. WITCOMBE.

H.C. —W. MOSES.

CLASS 6. —PLYMOUTH ROCK (ANY OTHER VARIETY), HEN.
[1 entry.]

I. (£1 10s.) —MRS. J. A. DREW.

CLASS 7. —ORPINGTON (ANY VARIETY), COCK. [6 entries.]

I. (£1 10s.) —W. H. BREWER.

II. (£1.) —J. ROBERTS.

III. (10s.) —COOKS POULTRY FARM, (LD.)

R. —T. C. PINNIGER.

H.C. —J. HARRINGTON.

CLASS 8. —ORPINGTON (ANY VARIETY), HEN. [10 entries.]

I. (£1 10s.) —L. ARDERN, *Black*.

II. (£1.) —LORD DEWAR.

III. (10s.) —T. C. PINNIGER.

R. —W. BALMENT.

V.H.C. —W. H. BREWER. —C. J. SPINKE.

CLASS 9. —BARNVELDER, COCK. [9 entries.]

I. (£1 10s.) —COOKS POULTRY FARM, (LD.)

II. (£1.) —A. MOSLEY.

III. (10s.) —W. E. DENNIS.

R. —A. MOSLEY.

V.H.C. —P. E. PAYNE.

H.C. —J. H. BAKER & SON. —H. B. PASSMORE.

CLASS 10. —BARNVELDER, HEN. [7 entries.]

I. (£1 10s.) —COOKS POULTRY FARM, (LD.)

II. (£1.) —HORLEY LODGE POULTRY FARM.

III. (10s.) —P. A. WITCOMBE.

R. —A. MOSLEY.

H.C. —A. TAYLOR.

CLASS 11.—RHODE ISLAND RED, COCK. [15 entries.]

I. (£1 10s.) —J. H. BAKER & SON.

II. (£1.) —G. H. MUZZLEWHITE.

III. (10s.) —SULLY BROS.

R. —A. PANES.

V.H.C. —L. FLETCHER.—S. LAKE.—F. J. PHILLIPS.

H.C. —ABBOT BROS.—G. CLEAVES.—T. DAVIES.—HILL & PIERCE.

CLASS 12.—RHODE ISLAND RED, HEN. [9 entries.]

- I. (£1 10s.)—G. H. MUZZLEWHITE.
- II. (£1.)—SULLY BROS.
- III. (10s.)—J. H. BAKER & SON.
- R.—F. J. PHILLIPS.
- V.H.C.—G. CLEAVES.—L. FLETCHER.
- H.C.—HILL & PIERCE.

CLASS 13.—SUSSEX (LIGHT), COCK. [9 entries.]

- I. (£1 10s.)—LORD DEWAR.
- II. (£1.)—MRS. M. A. GRANT.
- III. (10s.)—J. H. BAKER & SON.
- R.—MRS. J. G. MORRIS.
- V.H.C.—A. J. FALKENSTEIN. —H. GUNN.
- H.C.—COOKS POULTRY FARM, (LD.)

CLASS 14.—SUSSEX (LIGHT), HEN. [9 entries.]

- I. (£1 10s.)—LORD DEWAR.
- II. (£1.)—J. H. BAKER & SON.
- III. (10s.)—MRS. J. G. MORRIS.
- R.—A. J. FALKENSTEIN.
- V.H.C.—Major J. A. MORRISON, D.S.O.
- H.C.—MRS. M. A. GRANT. —A. JOHNS.—C. A. TAYLOR.

CLASS 15.—SUSSEX (SPECKLED), COCK. [4 entries.]

- I. (£1 10s.)—MRS. M. A. GRANT.
- II. (£1.)—Major J. A. MORRISON, D.S.O.
- R.—A. J. FALKENSTEIN.
- H.C.—W. M. DAVIES.

CLASS 16.—SUSSEX (SPECKLED), HEN. [7 entries.]

- I. (£1 10s.)—W. M. DAVIES.
- II. (£1.)—J. H. BAKER & SON.
- III. (10s.)—S. T. SELLERS.
- R.—Major J. A. MORRISON, D.S.O.
- V.H.C.—MRS. M. A. GRANT.

CLASS 17.—SUSSEX (ANY OTHER VARIETY), COCK. [10 entries.]

- I. (£1 10s.)—L. ARDERN, *Red*.
- II. (£1.)—Major J. A. MORRISON, D.S.O.
- III. (10s.)—C. HARDY.
- R.—C. HARDY.
- V.H.C.—A. J. FALKENSTEIN.—MRS. J. G. MORRIS.
- H.C.—MRS. M. A. GRANT, *Braque*.—J. E. SHAW, M.B.

CLASS 18.—SUSSEX (ANY OTHER VARIETY), HEN. [8 entries.]

I. (£1 10s.)—Mrs. M. A. GRANT, *Red*.

II. (£1.)—Mrs. J. G. MORRIS.

III. (10s.)—C. HARDY.

R.—Major J. A. MORRISON, D.S.O.

V.H.C.—L. ARDERN, *Brown*.

H.C.—J. E. SHAW, M.B.

CLASS 19. DORKING (ANY VARIETY), COCK. [5 entries.]

I. (£1 10s.)—R. ALTY.

II. (£1.)—J. H. BAKER & SON.

R.—A. J. MAJOR.

V.H.C.—Miss S. M. CORBETT.

H.C.—A. J. MAJOR.

CLASS 20. DORKING (ANY VARIETY), HEN. [5 entries.]

I. (£1 10s.)—R. ALTY.

II. (£1.)—A. J. MAJOR.

R.—W. R. OATEY.

H.C.—A. J. MAJOR.

CLASS 21. LANGSHAN, COCK OR HEN. [12 entries.]

I. (£1 10s.)—C. HARRIS.

II. (£1.)—J. T. GROVES.

III. (10s.)—E. EMERY.

R.—W. H. BREWER.

V.H.C.—J. T. GROVES.—A. HORSEY.—Sir T. F. BUXTON, Bart.

H.C.—LORD DEWAR.—E. EMERY.—A. HORSEY.

CLASS 22.—WYANDOTTE (WHITE), COCK. [9 entries.]

I. (£1 10s.)—LORD DEWAR.

II. (£1.)—H. GUNN.

III. (10s.)—W. H. BREWER.

R.—H. GUNN.

V.H.C.—J. HARRINGTON.

H.C.—T. ROSKELLY.

CLASS 23.—WYANDOTTE (WHITE), HEN. [7 entries.]

I. (£1 10s.)—W. H. BREWER.

II. (£1.)—H. GUNN.

III. (10s.)—LORD DEWAR.

V.H.C.—J. HARRINGTON.

CLASS 24.—WYANDOTTE (ANY OTHER VARIETY), COCK. [6 entries.]

I. (£1 10s.)—W. H. BREWER.

II. (£1.)—W. W. THOMAS.

III. (10s.)—W. A. & R. F. SPENCER.

R.—J. RUNDLE.

CLASS 25.—WYANDOTTE (ANY OTHER VARIETY), HEN. [8 entries.]

I. (£1 10s.)—W. H. BREWER.

II. (£1.)—H. GUNN.

III. (10s.)—LORD DEWAR.

R.—J. H. BAKER & SON, *Silver*.

V.H.C.—J. RUNDLE.

H.C.—W. SNELL.

CLASS 26.—INDIAN GAME, COCK. [12 entries.]

I. (£1 10s.)—J. H. BAKER & SON.

II. (£1.)—L. ARDERN.

III. (10s.)—G. F. KENDALL.

R.—C. BRENT.

V.H.C.—A. FOYLE.

H.C.—N. HARRIS.

C.—N. HARRIS.

CLASS 27.—INDIAN GAME, HEN. [9 entries.]

I. (£1 10s.)—L. ARDERN.

II. (£1.)—W. J. CAMP.

III. (10s.)—J. H. BAKER & SON.

R.—N. H. REED.

V.H.C.—C. BRENT.

CLASS 28.—FRENCH (INCLUDING FAVEROLLES), COCK. [3 entries.]

I. (£1 10s.)—G. HENWOOD.

II. (£1.)—J. WATTS.

R.—G. HENWOOD.

CLASS 29.—FRENCH (INCLUDING FAVEROLLES), HEN. [5 entries.]

I. (£1 10s.)—H. J. PETERS.

II. (£1.)—F. W. GOODWIN.

R.—J. WATTS.

V.H.C.—G. HENWOOD.

H.C.—G. HENWOOD.

CLASS 30.—MINORCA, COCK. [8 entries.]

- I. (£1 10s.)—**LORD DEWAR.
- II. (£1.)—**G. CLEAVES.
- III. (10s.)—**W. F. FACKRELL.
- R.—**J. PETTICAN.
- V.H.C.—**R. HAKE.
- H.C.—**A. G. PITTS.
- C.—**W. S. DANDO.

CLASS 31.—MINORCA, HEN. [12 entries.]

- I. (£1 10s.)—**LORD DEWAR.
- II. (£1.)—**W. G. BLAKE & HURFORD.
- III. (10s.)—**FURSLAND BROS.
- R.—**E. DODD.
- V.H.C.—**J. W. PERRY.
- H.C.—**R. PRENTICE.
- C.—**W. J. FACKRELL.

CLASS 32.—LEGHORN (WHITE), COCK. (2 entries.)

- I. (£1 10s.)—**LORD DEWAR.

CLASS 33.—LEGHORN (WHITE), HEN. [5 entries.]

- I. (£1 10s.)—**LORD DEWAR.
- II. (£1.)—**T. REES.
- R.—**F. J. PHILLIPS.
- V.H.C.—**H. SPENCER.
- H.C.—**H. SPENCER.

CLASS 34.—LEGHORN (ANY OTHER COLOUR), COCK. [10 entries.]

- I. (£1 10s.)—**LORD DEWAR.
- II. (£1.)—**E. L. SIMON.
- III. (10s.)—**E. L. SIMON.
- R.—**J. HEARN.
- V.H.C.—**G. W. POOLE.
- H.C.—**W. E. GILLING.
- C.—**W. J. FACKRELL.

CLASS 35.—LEGHORN, (ANY OTHER COLOUR), HEN. [11 entries.]

- I. (£1 10s.)—**J. ROBINSON.
- II. (£1.)—**J. ROBINSON.
- III. (10s.)—**W. E. GILLING.
- R.—**T. REES.

V.H.C.—E. RUDDICK.

H.C.—Mrs. H. E. WARREN.

C.—E. RUDDICK.

CLASS 36.—HAMBURG (ANY VARIETY), COCK OR HEN. [6 entries.]

I. (£1 10s.)—H. FORTUNE.

II. (£1.)—W. H. AVERY, *Silver Pencilled*.

III. (10s.)—W. SNELL.

R.—L. BEVAN.

V.H.C.—J. W. PERRY.

H.C.—W. SNELL.

CLASS 37.—CAMPINE, COCK OR HEN. [2 entries.]

I. (£1 10s.)—Lt. Commander H. G. NALDER.

R.—Lt. Commander H. G. NALDER.

CLASS 38. OLD ENGLISH GAME (BLACK RED, WHEATON OR PARTRIDGE), COCK. [5 entries.]

I. (£1 10s.)—LORD DEWAR.

II. (£1.)—J. H. BAKER & SON.

R.—R. D. BLIGHT.

H.C.—W. H. HAMBLETON.

C.—Miss S. M. CORBETT.

CLASS 39. OLD ENGLISH GAME (BLACK RED, WHEATON OR PARTRIDGE,) HEN. [8 entries.]

I. (£1 10s.)—R. D. BLIGHT.

II. (£1.)—R. D. BLIGHT.

III. (10s.)—J. JONES.

R.—J. H. BAKER & SON.

V.H.C.—H. W. HAMBLETON.

H.C.—S. DAVIES.

C.—J. JONES.

CLASS 40.—OLD ENGLISH GAME (ANY OTHER COLOUR), COCK. [11 entries.]

I. (£1 10s.)—Major J. A. MORRISON, D.S.O.

II. (£1.)—J. H. BAKER & SON.

III. (10s.)—G. MASON.

R.—Major J. A. MORRISON, D.S.O.

V.H.C.—F. G. BIGG & SON.

H.C.—COLES & TURNBULL.

C.—COLES & TURNBULL.

CLASS 41.—OLD ENGLISH GAME (ANY OTHER COLOUR), HEN.
[9 entries.]

- I. (£1 10s.)**—J. H. BAKER & SON.
II. (£1.)—A. L. TOMS.
III. (10s.)—COLES & TURNBULL.
R.—G. MASON.
V.H.C.—F. G. BIGG & SON.
H.C.—Major J. A. MORRISON, D.S.O.
C.—S. DAVIES.

CLASS 42. ANCONA, COCK. [5 entries.]

- I. (£1 10s.)**—J. METCALFE
II. (£1.)—J. G. BASTARD.
R.—T. HAY.
V.H.C.—M. SMITH.
H.C.—J. E. FURNESS.

CLASS 43.—ANCONA, HEN. [9 entries.]

- I. (£1 10s.)**—T. DAVIES.
II. (£1.)—M. SMITH.
III. (10s.)—T. HAY.
R.—T. DAVIES.
V.H.C.—J. E. FURNESS.
H.C.—J. G. BASTARD.
C.—M. SMITH.

CLASS 44.—ANY OTHER DISTINCT BREED NOT PREVIOUSLY MENTIONED (EXCLUDING BANTAMS), COCK. [7 entries.]

- I. (£1 10s.)**—R. FLETCHER HEARNshaw, *Scots Grey*.
II. (£1.)—J. H. BAKER & SON, *Malay*.
III. (10s.)—H. KEY, *Gold Poland*.
R.—N. HARRIS, *Jubilee Indian Game*.

CLASS 45.—ANY OTHER DISTINCT BREED NOT PREVIOUSLY MENTIONED (EXCLUDING BANTAMS), HEN. [7 entries.]

- I. (£1 10s.)**—N. HARRIS, *Jubilee Indian Game*.
II. (£1.)—H. KEY, *Gold Poland*.
III. (10s.)—L. ARDERN, *Jubilee*.
R.—R. FLETCHER HEARNshaw, *Scots Grey*.
V.H.C.—LORD DEWAR.
H.C.—J. H. BAKER & SON, *Malay*.
C.—B. BENCOE, *Jubilee Game*.

SELLING CLASSES.

CLASS 46.—ANY DISTINCT BREED—COCK OR COCKEREL (PRICE NOT TO EXCEED £1 ls.) [20 entries.]

I. (£1 10s.)—H. S. DAVIES, *Old English Game*.

II. (£1.)—A. S. WARREN, *Light Sussex*.

III. (10s.)—G. MASON, *Game*.

V.H.C.—L. ARDERN, *Indian Game*—W. H. BREWER.—Capt. H. C. FRANKLIN, M.C., *Croad Langshan*.—HILL & PIERCE, *R. I. R.*—J. LIPPIATT, *Buff Plymouth Rock*.—A. S. WARREN.

H.C.—J. H. BAKER & SON, *Indian Game*.—W. BENCE, *Indian Game*.—E. EMERY, *Croad Langshan*.—Miss E. HOUSE, *Barnvelder*.—T. C. PINNIGER, *Black Orpington*.

CLASS 47.—ANY DISTINCT BREED—HEN OR PULLETT (PRICE NOT TO EXCEED £1 ls.) [9 entries.]

I. (£1 10s.)—J. H. BAKER & SON, *Indian Game*.

II. (£1.)—W. H. BREWER.

III. (10s.)—L. ARDERN, *Indian Game*.

R.—LORD DEWAR.

V.H.C.—W. S. DANDO, *Black Minorca*.—G. MASON, *Game*.—T. C. PINNIGER, *Black Orpington*.—M. J. STOWER, *Indian Game*.

CHICKENS OF 1927.

CLASS 48.—SUSSEX (ANY VARIETY), COCKEREL. [11 entries.]

I. (£1 10s.)—LORD DEWAR, hatched January 7th.

II. (£1.)—A. J. FALKENSTEIN, hatched January 1st.

III. (10s.)—Mrs. J. G. MORRIS, hatched January 5th.

R.—Major J. A. MORRISON, D.S.O., hatched January 4th.

V.H.C.—T. MARKS & SON, hatched January.

H.C.—T. MARKS & SON, hatched January.—T. MARKS & SON, hatched January.—Major J. A. MORRISON, D.S.O., hatched January 4th.

CLASS 49.—SUSSEX (ANY VARIETY), PULLETT. (12 entries.)

I. (£1 10s.)—A. J. FALKENSTEIN, hatched January 1st.

II. (£1.)—T. MARKS & SON, hatched January.

III. (10s.)—Major J. A. MORRISON, D.S.O.

R.—Mrs. J. G. MORRIS, hatched January 5th.

V.H.C.—T. MARKS & SON, hatched January. Major J. A. MORRISON, D.S.O.

H.C.—T. MARKS & SON, hatched January.

CLASS 50.—WYANDOTTE (ANY VARIETY), COCKEREL. [3 entries.]

I. (£1 10s.)—LORD DEWAR, hatched January 3rd.

II. (£1.)—W. H. BREWER, hatched January 2nd.

CLASS 51.—WYANDOTTE (ANY VARIETY), PULLET. [3 entries.]

I. (£1 10s.)—LORD DEWAR, hatched January 3rd.

II. (£1.)—W. H. BREWER, hatched January 4th.

CLASS 52.—ANY OTHER VARIETY, SOFT FEATHER, COCKEREL.
[8 entries.]

I. (£1 10s.)—LORD DEWAR, hatched January 3rd.

II. (£1.)—A. J. MAJOR, *Dorking*, hatched January 2nd.

III. (10s.)—W. J. CAMP.

R.—W. H. BREWER, hatched January 4th.

V.H.C.—COOK'S POULTRY FARM, LTD., *Orpington*, hatched January 3rd.H.C.—MISS M. N. JACKMAN, *Black Hamburg*, hatched January 3rd.CLASS 53.—ANY OTHER VARIETY, SOFT FEATHER, PULLET.
[7 entries.]I. (£1 10s.)—A. J. MAJOR, *Dorking*, hatched January 2nd.

II. (£1.)—LORD DEWAR, hatched January 3rd.

III. (10s.)—COOK'S POULTRY FARM, LTD., *Orpington*, hatched January 3rd.R.—J. H. BAKER & SON, *R. I. Red*, hatched January 2nd.

V.H.C.—H. FORTUNE.

CLASS 54.—ANY OTHER VARIETY, HARD FEATHER, COCKEREL.
[6 entries.]I. (£1 10s.)—J. H. BAKER & SON, *Indian Game*, hatched January 2nd.II. (£1.)—L. ARDERN, *Indian Game*.III. (10s.)—W. H. REED, *Indian Game*.CLASS 55.—ANY OTHER VARIETY, HARD FEATHER, PULLET.
[7 entries.]I. (£1 10s.)—L. ARDERN, *Indian Game*.II. (£1.)—W. H. REED, *Indian Game*.III. (10s.)—W. J. CAMP, *Indian Game*.

UTILITY POULTRY.

CLASS 56.—WYANDOTTE, COCK. [6 entries.]

- I. (£1 10s.)**—LORD DEWAR.
- II. (£1.)**—TREBILCOCK BROS.
- III. (10s.)**—H. HARRINGTON.
- R.**—R. N. CORNER.
- H.C.**—F. SALVIDGE.

CLASS 57.—WYANDOTTE, HEN. [9 entries.]

- I. (£1 10s.)**—T. ROSKELLY.
- II. (£1.)**—LORD DEWAR.
- III. (10s.)**—H. HARRINGTON.
- R.**—B. WALL.
- V.H.C.**—Miss B. L. TICKHURST.—TREBILCOCK BROS.
- H.C.**—J. H. BAKER & SON.

CLASS 58.—SUSSEX, COCK. [8 entries.]

- I. (£1 10s.)**—L. ARDERN.
- II. (£1.)**—LORD DEWAR.
- III. (10s.)**—J. H. BAKER & SON.
- R.**—TREBILCOCK BROS.
- V.H.C.**—T. MARKS & SON.

CLASS 59.—SUSSEX, HEN. [9 entries.]

- I. (£1 10s.)**—LORD DEWAR.
- II. (£1.)**—J. H. BAKER & SON.
- III. (10s.)**—L. ARDERN.
- R.**—J. E. ATHERTON.
- V.H.C.**—T. MARKS & SON.—R. H. NORTHEY.
- H.C.**—TREBILCOCK BROS.

CLASS 60.—LEGHORN, COCK. [7 entries.]

- I. (£1 10s.)**—LORD DEWAR.
- II. (£1.)**—COOK'S POULTRY FARM, LTD.
- III. (10s.)**—B. STRANACK.
- R.**—A. DAUNTON.
- V.H.C.**—B. STRANACK.

CLASS 61.—LEGHORN, HEN. [19 entries.]

I. (£1 10s.)—Miss A. RUGMAN.

II. (£1.)—LORD DEWAR.

III. (10s.)—B. STRANACK.

R.—B. STRANACK.

V.H.C.—J. ROBINSON.

H.C.—L. BRICE.

C.—A. DAUNTON.

CLASS 62.—RHODE ISLAND RED, COCK. [16 entries.]

I. (£1 10s.)—Mrs. G. W. SMALL.

II. (£1.)—J. H. BAKER & SON.

III. (10s.)—A. BATSTONE.

R.—F. W. N. GODDARD.

V.H.C.—A. PANES.

H.C.—W. BENN.

C.—HILL & PIERCE.

CLASS 63.—RHODE ISLAND RED, HEN. [13 entries.]

I. (£1 10s.)—A. PANES.

II. (£1.)—J. H. BAKER & SON.

III. (10s.)—A. S. WARREN.

R.—A. PANES.

V.H.C.—HILL & PIERCE.

H.C.—A. BATSTONE.

C.—L. FLETCHER.

CLASS 64.—ANY OTHER VARIETY, LIGHT BREED COCK. [3 entries.]

I. (£1 10s.)—B. STRANACK, *Ancona*.

II. (£1.)—A. E. COLLETT.

CLASS 65.—ANY OTHER VARIETY LIGHT BREED, HEN. [9 entries.]

I. (£1 10s.)—J. H. BAKER & SON, *Ancona*.

II. (£1.)—B. STRANACK.

III. (10s.)—A. E. COLLETT.

R.—B. STRANACK, *Ancona*.V.H.C.—J. PETTICAN, *Minorca*.

CLASS 66.—ANY OTHER VARIETY, HEAVY BREED, COCK. [7 entries.]

- I. (£1 10s.)**—Miss A. RUGMAN, *Buff Rock*.
- II. (£1.)**—H. J. SCREECH, *Buff Plymouth Rock*.
- III. (10s.)**—Mrs. J. A. DREW.
- R.**—C. H. PARKER, *Barred Rock*.
- C.**—Miss E. HOUSE.

CLASS 67. —ANY OTHER VARIETY, HEAVY BREED, HEN. [12 entries].

- I. (£1 10s.)**—Mrs. J. H. DREW.
- II. (£1.)**—E. EMERY, *Croad Langshan*.
- III. (10s.)**—Miss A. RUGMAN, *Buff Rock*.
- R.**—Miss E. HOUSE.
- V.H.C.**—H. J. SCREECH, *Buff Plymouth Rock*.

SPECIAL PRIZE.

Best Exhibit in any of the Poultry Classes by a resident within a radius of 30 miles of the Guildhall, Bath.

- I. (£3.)**—SULLY BROS.

CHAMPION PRIZES.

Best Cock or Cockerel exhibited in any of the Classes.

- I. (£3.)**—J. H. BAKER & SON.

Best Hen or Pullet exhibited in any other Classes.

- I. (£3.)**—W. H. BREWER.

DUCKS, GEESE AND TURKEYS.

CLASS 68.—DRAKE OR DUCK (AYLESBURY). [10 entries.]

- I. (£1 10s.)**—A. LEWINGTON.
- II. (£1.)**—H. G. WESTON.
- III. (10s.)**—R. PALUMBO.
- R.**—T. H. LUSCOMBE.
- V.H.C.**—C. A. TAYLOR.
- H.C.**—G. B. BURROUGH.
- C.**—G. B. BORROUGH.

CLASS 69.—DRAKE OR DUCK (ROUEN). [8 entries.]

I. (£1 10s.)—S. SPINKE.**II. (£1.)**—R. ALTY.**III. (10s.)**—S. SPINKE.**R.**—W. J. CAMP.**V.H.C.**—R. PALUMBO.**H.C.**—F. E. A. CROUCH.**C.**—B. STRANACK.

CLASS 70.—DRAKE OR DUCK. (INDIAN RUNNER). [10 entries.]

I. (£1 10s.)—G. B. BURROUGH.**II. (£1.)**—G. B. BURROUGH.**III. (10s.)**—L. LEWIS.**R.**—G. B. BURROUGH.**V.H.C.**—L. LEWIS.**H.C.**—A. LEWINGTON.**C.**—R. J. PEAKE.

CLASS 71.—DRAKE OR DUCK (ANY OTHER VARIETY). [7 entries.]

I. (£1 10s.)—ABBOT BROS.**II. (£1.)**—G. B. HALLETT.**III. (10s.)**—J. H. BUTLER.**R.**—F. R. CRAWSHAY.**V.H.C.**—J. H. BUTLER.

CLASS 72.—GANDER OR GOOSE. [4 entries.]

I. (£1 10s.)—A. S. WARREN.**II. (£1.)**—G. B. BURROUGH.**R.**—MRS. M. JOHNSON.**V.H.C.**—ABBOT BROS.

CLASS 73.—TURKEY, COCK OR HEN. [7 entries.]

I. (£1 10s.)—ABBOT BROS.**II. (£1.)**—J. MORRIS.**III. (10s.)**—MRS. W. B. FIELD.**R.**—MRS. M. JOHNSON.**V.H.C.**—B. STRANACK.**H.C.**—B. STRANACK.

PIGEONS.

(UNDER N.P.A. SHOW RULES.)

CLASS 74.—POUTER, PIGMY OR CROPPER, COCK OR HEN.
[3 entries.]

I. (10s.)—C. & W. J. THOMAS, *Norwich Cropper*.

II. (8s.)—J. VOISEY, *Cropper*.

H.C.—A. BLACKMAN, *Pouter*.

CLASS 75.—DRAGON, COCK. [5 entries.]

I. (10s.) ROGERS BROS.

II. (8s.)—ROGERS BROS.

V.H.C.—F. J. EVANS.

H.C.—F. J. EVANS.

CLASS 76.—DRAGON, HEN. [3 entries.]

I. (10s.) F. J. EVANS.

III. (6s.)—ROGERS BROS.

V.H.C. F. J. EVANS.

CLASS 77.—MAGPIE (BLACK), COCK OR HEN. [2 entries.]

I. (10s.)—A. COOKE.

V.H.C. C. & W. J. THOMAS.

CLASS 78.—MAGPIE (ANY OTHER COLOUR), COCK OR HEN.
[3 entries.]

II. (8s.) PALMER & JAMES.

H.C.—PALMER & JAMES.

C.—A. COOKE.

CLASS 79.—TUMBLER (LONG-FACED), COCK OR HEN. [4 entries.]

I. (10s.)—ROGERS BROS.

II. (8s.)—ROGERS BROS.

V.H.C.—W. L. LANGLEY.

H.C.—A. PETERS & SON.

CLASS 80.—JACOBIN (BLACK), COCK OR HEN. [2 entries.]

II. (8s.)—A. J. HOWARD.

CLASS 81.—JACOBIN (ANY OTHER COLOUR), COCK OR HEN.
[1 entry.]

I. (10s.)—C. & W. J. THOMAS.

CLASS 82.—ORIENTAL (ANY VARIETY), COCK OR HEN.—FIRST PRIZE,
10s.—SECOND, 8s.—THIRD, 6s.

[No. ENTRY.]

CLASS 83.—NUN (BLACK), COCK OR HEN—FIRST PRIZE, 10s.—SECOND, 8s.—THIRD, 6s.

[No ENTRY.]

CLASS 84.—NUN (ANY OTHER COLOUR), COCK OR HEN—FIRST PRIZE, 10s. SECOND, 8s. THIRD, 6s.

[No ENTRY.]

CLASS 85.—ARCHANGEL, COCK. [7 entries.]

I. (10s.)—Miss I. C. GARDINER.

II. (8s.)—C. A. EDWARDS.

III. (6s.)—C. A. EDWARDS.

V.H.C. C. A. EDWARDS.

H.C. —H. W. WEBB.

CLASS 86.—ARCHANGEL, HEN. [5 entries.]

I. (10s.)—Miss I. C. GARDINER.

II. (8s.) —H. W. WEBB.

V.H.C.—C. A. EDWARDS.

H.C.—C. A. EDWARDS.

CLASS 87. —MODENA, COCK. [4 entries.]

I. (10s.) W. COCKERILL.

II. (8s.) ROGERS BROS.

V.H.C. —C. A. EDWARDS.

C. —W. L. LANGLEY.

CLASS 88. —MODENA, HEN. [3 entries.]

II. (8s.) C. A. EDWARDS.

III. (6s.) ROGERS BROS.

H.C. W. COCKERILL.

CLASS 89. —FANTAIL (WHITE), COCK OR HEN—FIRST PRIZE, 10s.—SECOND, 8s. THIRD, 6s.

[No ENTRY.]

CLASS 90. —FANTAIL (ANY OTHER COLOUR), COCK OR HEN—FIRST PRIZE, 10s. SECOND, 8s.—THIRD, 6s.

[No ENTRY.]

CLASS 91. —FLYING TIPPLER OR TUMBLER, COCK. [1 entry.]

I. (10s.)—A. H. BUSH.

CLASS 92.—FLYING TIPPLER OR TUMBLER, HEN. [1 entry.]

II. (8s.)—A. H. BUSH.

CLASS 93. —WORKING HOMER, COCK. (4 entries.)

I. (10s.) —T. W. HARRISON.

II. (8s.) —F. J. EVANS.

V.H.C. —T. W. HARRISON.

H.C. —J. OATWAY.

CLASS 94. —WORKING HOMER, HEN. [5 entries.]

I. (10s.) —J. OATWAY.

II. (8s.) —T. W. HARRISON.

V.H.C. —J. OATWAY.

H.C. —T. W. HARRISON.

C. —F. J. EVANS.

CLASS 95. —ANY OTHER VARIETY, COCK OR HEN. [10 entries.]

I. (10s.) —F. G. BARNARD, *Show Homer*.

II. (8s.) —L. ARDERN, *Scandaroon*.

III. (6s.) —F. J. EVANS, *Carrier*.

R. —ROGERS BROS.

V.H.C. —F. G. BARNARD, *Show Homer*.—A. BLACKMAN, *Scandaroon*.

C. —H. W. WEBB, *Tape Runt*.

CLASS 96. —SELLING CLASS (ANY VARIETY, NOT TO EXCEED £2),
COCK OR HEN. [5 entries.]

I. (10s.) —F. J. EVANS, *Carrier*.

II. (8s.) —C. A. EDWARDS, *Archangel*.

R. —F. J. EVANS, *Dragoon*.

V.H.C. —ROGERS BROS.

H.C. —A. BLACKMAN, *Scandaroon*.

CLASS 97. —SELLING CLASS (ANY VARIETY, NOT TO EXCEED £1),
COCK OR HEN. [5 entries.]

I. (10s.) —C. A. EDWARDS, *Archangel*.

II. (8s.) —A. BLACKMAN.

R. —ROGERS BROS.

V.H.C. —Miss N. DRAKE.

H.C. —F. J. EVANS, *Dragoon*.

GIVEN BY THE BATH LOCAL COMMITTEE.

*Best Pigeon exhibited in any of the Classes by a resident within a radius of
30 miles of the Guildhall, Bath.*

I. (£2.) —F. G. BARNARD, *Show Homer*.

R. —Miss I. C. GARDINER.

RABBITS.

CLASS 1.—ENGLISH (BLACK OR BLUE), 4 MONTHS OLD AND OVER.
[3 entries.]

I. (10s.)—G. A. DRAKE, August 18th, 1926.

II. (8s.)—MRS. C. R. CORNER.

V.H.C. W. JENKINS, March.

CLASS 2.—ENGLISH (ANY OTHER COLOUR), 4 MONTHS OLD AND OVER. [1 entry.]

I. (10s.) G. A. DRAKE, July 20th, 1926.

CLASS 3.—ENGLISH (ANY COLOUR), UNDER 4 MONTHS. [1 entry.]
[No AWARD.]

CLASS 4.—SILVER, ANY AGE. [2 entries.]

I. (10s.)—C. L. BARHAM.

R.—C. L. BARHAM.

CLASS 5.—DUTCH (BLACK OR BLUE), 4 MONTHS OLD AND OVER FIRST PRIZE, 10s.—SECOND, 8s.—THIRD, 6s.
[No ENTRY.]

CLASS 6.—DUTCH (ANY OTHER COLOUR), 4 MONTHS OLD AND OVER
[1 entry.]

I. (10s.)—T. E. EBBS, July 19th, 1926.

CLASS 7.—DUTCH (ANY COLOUR), UNDER 4 MONTHS.—FIRST PRIZE, 10s.—SECOND, 8s.—THIRD, 6s.
[No ENTRY.]

CLASS 8.—CHINCHILLA. [13 entries.]

I. (10s.)—MRS. M. L. GORDON, January 11th, 1926.

II. (8s.)—T. E. EBBS, January 16th, 1926.

III. (6s.)—LANSDOWN FUR FARM.

R.—G. W. BENNETT.

V.H.C.—LANSDOWN FUR FARM.

H.C.—Miss F. DENT YOUNG.

C.—W. L. LOUD, October 19th, 1926.

CLASS 9.—BEVERAN (BLUE). [1 entry.]

III. (6s.)—W. S. DAVIS, January 6th, 1927.

CLASS 10.—BEVERAN (WHITE). (2 entries.)

II. (8s.)—Miss J. HEADINGTON, December 6th, 1926.

V.H.C.—Miss J. HEADINGTON, January 31st, 1926.

CLASS 11.—BELGIAN HARE, 4 MONTHS OLD AND OVER—FIRST PRIZE, 10s.—SECOND, 8s.—THIRD, 6s.
[No ENTRY.]

CLASS 12.—BELGIAN HARE, UNDER 4 MONTHS. [2 entries.]

I. (10s.)—J. TERRY & SON, January 25th, 1927.

V.H.C.—W. J. ROBERTS, February 22nd, 1927.

CLASS 13.—HAVANA. [5 entries.]

I. (10s.)—J. P. BISHOP, 1926.

II. (8s.)—J. WOOD, January 4th, 1926.

R.—C. G. CUFF, July 7th, 1926.

V.H.C.—C. G. CUFF, September 9th, 1926.

H.C.—C. R. EYRE, April 9th, 1926.

CLASS 14.—TAN. [5 entries.]

I. (10s.)—F. G. GANE, October, 1926.

II. (8s.)—W. H. WALTER.

R.—C. A. M. WOOD.

V.H.C.—A. GANE.

H.C.—C. A. M. WOOD.

CLASS 15.—LILAC. [3 entries.]

I. (10s.)—W. S. DAVIES, March 20th, 1926.

II. (8s.)—J. WOOD, September 2nd, 1926.

R.—J. WOOD.

CLASS 16.—FLEMISH GIANT.—FIRST PRIZE, 10s.—SECOND, 8s.—THIRD, 6s.
[NO ENTRY.]

CLASS 17.—ANY OTHER VARIETY, 4 MONTHS OLD AND OVER.
[3 entries.]

I. (10s.)—MRS. H. F. WELCH, August 10th, 1926.

II. (8s.)—MRS. H. F. WELCH, *Angora*, January 2nd, 1927.

R.—MISS L. B. MACKENZIE, *Angora*, October 5th, 1926.

CLASS 18.—ANY OTHER VARIETY, UNDER 4 MONTHS. [5 entries.]

I. (10s.)—T. EMBLING, *Polish*, February 2nd, 1927.

II. (8s.)—W. J. DREWETT, *Angora*, February 14th, 1927.

R.—V. J. FOSTER, *Angora*, February 24th.

V.H.C.—R. J. PEAKE, *Angora*, March.

H.C.—R. J. PEAKE.

CLASS 19.—SELLING CLASS (ANY VARIETY), PRICE NOT TO EXCEED
£1. [3 entries.]

I. (10s.)—C. A. M. WOOD.

II. (8s.)—W. J. DREWETT, *Angora*, July 26th.

R.—MRS. H. T. WELCH, *Chinchilla*, September, 26th.

GIVEN BY THE BATH LOCAL COMMITTEE.

*Best Rabbit exhibited in any of the Classes by a resident within a radius of
30 miles of the Guildhall, Bath.*

I. (£2.)—LANSDOWN FUR FARM.

SMALL HOLDINGS.

CLASS 1. SMALL HOLDING OF OVER 15 ACRES, PROVIDED BY THE COUNTY COUNCIL, SITUATE IN SOMERSET. [18 entries.]

I. (£20.) SHIRE, R. H., Downs, Donyatt, Ilminster; station, Ilminster, 2 miles G.W.; 51a.

II. (£10.) ROSSITER H., Pickney Farm, Kingston, Taunton; station, Taunton, 4 miles; 50a.

III. (£5.) MITCHELL H. G., Sea Farm, Ilminster, Somerset; station, Ilminster, $2\frac{1}{2}$ miles; 52a.

IV. (£4.) NASH, S. G., Fidecoak Farm, Bishops Hull, near Taunton; station, Norton Fitzwarren, $\frac{1}{4}$ mile; 50a.

V. (£3.)—PADFIELD D. B., Farrington Fields, Farrington Gurney, Bristol; station, Hallatrow, $\frac{3}{4}$ mile; 52a.

V.H.C. CHARD V., Park Farm, Donyatt, Ilminster; station, Ilminster, 3 miles; 51a. 2r. 15p.

H.C.—DODGE S. J., West End Farm, Marston Magna, Yeovil; station, Marston Magna, $\frac{1}{2}$ mile; $41\frac{1}{2}$ a.

CLASS 2. SMALL HOLDING OF OVER 5 ACRES AND NOT MORE THAN 15 ACRES, PROVIDED BY THE COUNTY COUNCIL, SITUATE IN SOMERSET. [2 entries.]

I. (£12.)—GILLINGHAM T., Seavington, Som.; station, Ilminster, 3 miles; 8a.

II. (£8.)—CREED E. F., 6, West Park, Castle Cary; station, Castle Cary, $\frac{1}{2}$ mile; $6\frac{1}{2}$ a.

CLASS 3.—MARKET GARDEN OF 5 ACRES AND UNDER. [3 entries.]

I. (£10.)—WILKINS E. A., Fidecoak Cottages, Bishops Hull, near Taunton; station, Norton Fitzwarren, about $\frac{1}{2}$ mile; 5a.

II. (£7.)—TOBIAS A. R., 3, Small Holding, Staplegrove, Taunton; station, Taunton, 2 miles; $2\frac{1}{2}$ a.

ALLOTMENTS.

OPEN TO ALL ALLOTMENT HOLDERS SITUATED WITHIN 4 MILES OF THE GUILDHALL, BATH.

Allotment Holders first competed for the Local Prizes arranged for each District.

SECTION I.

I. (£1 5s.) and 2nd Champion (**£4.**)—F. A. LANE, 9, Charlotte Street, Bath.

II. (15s.)—R. SHIPP, 24, Winchester Road, Bath.

III. (10s.)—A. L. BARNARD, 7, Nelson Place West, Bath.

SECTION II.

I. (£1 5s.) and Champion (**£5.**)—F. J. RUSSELL, 21, St. Kilda's Road, Oldfield Park, Bath.

II. (15s.) and 3rd Champion (**£3.**)—A. T. BALL, ~~22~~, Caledonian Road, Bath.

III. (10s.)—W. A. NICHOLS, 105, Coronation Avenue, Bath.

BATH & WEST & SOUTHERN COUNTIES SOCIETY.

OBJECTS OF THE SOCIETY AND PRIVILEGES OF MEMBERSHIP.

ANNUAL EXHIBITIONS.

THE Society annually holds an Exhibition in some city or town in England or Wales. Each section of the Society's district is visited at intervals, so that most Members have an opportunity of seeing the Show in their own neighbourhood every few years. Prizes to a large amount are given for Horses, Cattle, Sheep, Goats, Pigs, Farm Produce, &c. Provision is also made for the exhibition of Agricultural Implements and Machinery, Seeds, Cattle Foods, Artificial Manures, and articles of general utility. A substantially built and completely equipped working Dairy on a large scale is a special feature of these Exhibitions. Here explanatory demonstrations and comparative tests of processes are carried on, with the assistance of well-known practical and scientific experts, and Butter-making Competitions are held. Among the features of the Annual Meeting are Shoeing, Milking and other Competitions, Poultry and Horticultural Shows and Exhibitions, illustrative of Bee-keeping, Home Industries, Manufacturers, Rural Education and Research and Forestry.

Membership entitles to free admission to the Annual Exhibition, and also to the Grand Stand overlooking the Horse and Cattle Ring, to the Working Dairy, and to the use of the Members' Special Pavilion for Luncheons, Reading, Writing, &c.

Entries can be made by Members (elected on or before the last Tuesday in January preceding the Show, or who have paid two years' subscription before the date of closing of entries), at about half the fees payable by Non-Members.

THE JOURNAL.

All Members receive free of charge the Society's Journal, which is published annually. Members can have their copy bound in cloth for an additional payment of 1s. 6d. It has for its aim the dissemination of agricultural knowledge in a popular form, and, in addition to original articles by well-known agricultural authorities, it contains particulars of the Society's general operations, full reports of its experimental and research work, prize awards, financial statements, list of Members, reviews of new books on agriculture, &c. (The price of the Journal to non-Members is 6s. 6d. post free.)

CHEMICAL AND OTHER FACILITIES.

The Society has a Consulting Chemist, *from whom Members can obtain analyses and reports at reduced rates of charge.* An arrangement has also been made under which Members of the Society can obtain, free of charge, from the National Fruit and Cider Institute at Long Ashton, analyses of cider-apples and perry-pears, and, with a view to assisting farmers and others in dealing with insect and other pests which affect agriculture, horticulture, &c., the Council have availed themselves of an offer from the Board of Economic Biology of the University of Bristol to investigate the nature of any insect or other pest and report upon it free of charge.

EXPERIMENTS.

Experiments on crops are conducted at experimental stations in various parts of the Kingdom, and *Members are enabled to take part in these and to receive reports thereon.*

TERMS OF MEMBERSHIP.**ANNUAL SUBSCRIPTIONS.**

Governors, not less than	£2
Ordinary Members, not less than	£1
Tenant Farmers, the rateable value of whose holdings does not exceed £200 a year, not less than	10s.

Governors, who are eligible for election as President or Vice-President, are entitled, in addition to the privileges already mentioned, to an extra *Season Ticket* for the Annual Exhibition and for the Grand Stand, &c., on application to the Secretary. Governors subscribing more than £2 are entitled to a further Ticket for every additional £1 subscribed.

Members subscribing less than £1 are entitled to all the privileges of Membership except that of entering Stock at reduced fees. and their admission Ticket for the Annual Show is available for *one day only*, instead of for the whole time of the Exhibition.

LIFE COMPOSITIONS.

Governors may compound for their Subscription for future years by payment, in advance, of £20; and Members by payment, in advance, of £10. Governors and Members who have subscribed for twenty years may become Life Members on payment of half these amounts.

Any person desirous of joining the Society can be proposed by a Member, or by the Secretary, 3, Pierpont Street, Bath.

Telegraphic Address—"AGRICULTURE, BATH."

Telephone No. 610.

BATH & WEST & SOUTHERN COUNTIES SOCIETY.

GENERAL LAWS.

As revised in accordance with the Report of a Special Committee; which Report was received and adopted by the Annual General Meeting of Members, held on May 19, 1923.

COMPOSITION OF THE SOCIETY.

I. The Society shall consist of a President, Vice-Presidents, Trustees, Council, Treasurer, Secretary, and Members.

OBJECTS.

II. The Society shall have the following objects :—

- (a) To hold Exhibitions of breeding stock, agricultural implements, and such other articles connected with agriculture, horticulture, arts, manufactures or commerce, as may be determined upon by the Council.
- (b) To conduct practical and scientific investigations in agriculture and horticulture.
- (c) To promote technical education in agriculture and horticulture by providing means of systematic instruction.
- (d) To publish a Journal for circulation.

SUBSCRIPTIONS.

III. The Annual Subscription for Members shall be as follows :—

Governors (who are eligible for election as President or Vice-President), not less than	.. .. .	£2
Ordinary Members, not less than	.. .. .	£1
Tenant Farmers (the rateable value of whose holdings does not exceed £200 a year), not less than	.. .. .	10s.

IV. The payment of £20 in one sum shall constitute a Governor for life, and of £10 in one sum, an Ordinary Member for life; but any Governor who has subscribed not less than £2 annually for a period of twenty years may become a Life Governor on the further payment of £10 in one sum; and any Ordinary Member, who has subscribed not less than £1 annually for the same period may become a Life-Member on the further payment of £5 in one sum.

V. Subscriptions shall become due and be payable in advance on the 1st of January in each year or as soon as the Subscriber has been elected a Member. When the election takes place during the last quarter of the year, the subscription payable on election will be considered as applying to the ensuing year.

VI. A Member shall be liable to pay his subscription for the current year unless he shall have given notice, in writing, to the Secretary before January 1st, of his intention to withdraw.

GOVERNING BODY.

VII. The entire management of the Society—including the making of Bye-laws, election of Members, determining the Prizes to be awarded, appointing Committees, fixing the places of Meetings and Exhibitions, appointing or removing the Treasurer, Secretary, and such other officers as may be required to carry on the business of the Society—shall be vested in the Council, who shall report its proceedings at the Annual Meeting of the Society.

VIII. The Council shall consist of the Patron (if any), President, Vice-Presidents, Trustees, and Treasurer (who shall be *ex-officio* Members), and of sixty-six elected Members.

ELECTION OF PRESIDENT, VICE-PRESIDENTS, TRUSTEES AND COUNCIL.

IX. The election of a President for the year, of any additional Vice-Presidents, or Trustees, and of the Members of Council representing the Divisions named in Law X., shall take place at the Annual Meeting of the Society, and they shall enter into office at the conclusion of the Exhibition during which such Annual Meeting has been held.

X. The sixty-six Members of the Council referred to in Laws VIII. and IX. shall consist of fifty-eight persons residing or representing property in the following Divisions, viz. :—

Twelve from the Counties of Devon and Cornwall, which shall be called the Western Division.

Twenty-four from the Counties of Somerset, Dorset and Wilts, which shall be called the Central Division ;

Twelve from the Counties of Hants, Berks, Oxon, Bucks, Middlesex, Surrey, Sussex and Kent, which shall be called the Southern Division ; and

Ten from the Counties of Worcester, Gloucester, Hereford and Monmouth, and the Principality of Wales, which shall be called the North-Western Division.

The remaining eight shall be elected (irrespective of locality) from the general body of members, and shall form a Division which shall be called the “ Without Reference to District ” Division.

XI. One half of the elected Members in each of the five Divisions named in Law X. shall retire annually by rotation, but shall be eligible for re-election.

XII. The Council shall have power to nominate a President, Vice-Presidents, Trustees, and Members of Council for the approval of the Annual Meeting, and to fill up such vacancies in their own body as are left after the Annual Meeting, or as may from time to time occur during the interval between the Annual Meetings.

XIII. Nominations to offices, election to which is vested in the whole body of Members must reach the Secretary ten days before the meeting, at which such vacancies are to be filled up.

MEETINGS.

XIV. The Annual Meeting of the Society shall take place during the holding of the annual Exhibition.

XV. Special General Meetings of the Society may be convened by the President on the written requisition of not less than three Members of the Council ; and all Members shall have ten days’ notice of the object for which they are called together.

XVI. No Member of less than three months’ standing, or whose subscription is in arrear, shall be entitled to vote at a Meeting.

EXHIBITIONS.

XVII. The Annual Exhibition of the Society shall be held in different Cities or Towns in successive years.

XVIII. All Exhibitors shall pay such fees as may be fixed by the Council. Members subscribing not less than £1 per annum, who have been elected previous to February 1st, and have paid the subscription for the current year, or if elected later, who pay a subscription for the previous year and the current subscription, before the date of closing of entries, shall be entitled to exhibit at such reduction in these fees as the Council shall determine.

PRIZES.

XIX. All prizes offered at the cost of the Society shall be open for competition to the United Kingdom.

XX. No person intending to compete for any prize offered at the annual Exhibition shall be eligible to act as a judge or to have any voice in the selection of judges to award the premiums in the department in which he exhibits.

XXI. If it be proved to the satisfaction of the Council that any person has attempted to gain a prize in this, or in any other society, by a false certificate or by a misrepresentation of any kind, such person shall thereupon be, for the future, excluded from exhibiting in this Society.

JOURNAL.

XXII. The Proceedings of the Society, Awards of Prizes, Financial Statements and Lists of Officers, Governors, and Members, shall be printed annually in the Society's *Journal*, and every Governor and Member, not in arrear with his subscription, shall be entitled to receive one copy, free of expense, and there shall be an additional number printed for sale.

POLITICS.

XXIII. No motion or question of a political tendency shall be introduced at any meeting of the Society, otherwise than with the consent of two-thirds of the members present at any meeting, and then only after 14 days' notice in writing.

ALTERATIONS IN LAWS.

XXIV. No new General Law shall be made or existing one altered, added to or rescinded, except at an Annual or Special General Meeting, and then only provided that a statement of particulars, in writing, shall have been sent to the Secretary at least twenty-one days previous to the Meeting at which the question is to be considered.

ANNUAL EXHIBITIONS.

Year.	Place Visited.	Local Subscrip- tion.	Prizes.			Total Contri- bution.	President.	Admissions.		Total.
			Local Com- mittee.	Local Societies.	Local Resi- dents.			On 2/6 Days.	On 1/- Days.	
1854	Bath	£ 450	£	£	£	£	William Miles, M.P.	..	..	..
1855	Tiverton	450	..	..	..	450	Earl Fortescue	..	..	..
1856	Yeovil	450	..	..	..	450	C. A. Moody, M.P.	..	..	..
1857	Newton Abbot	700	..	..	..	700	Lord Courtenay	..	..	..
1858	Cardiff	800	..	..	..	800	Lord Courtenay	..	..	..
1859	Barnstaple	800	..	..	..	800	John Sillifant	..	..	..
1860	Dorchester	900	85	..	81	966	Lord Rivers	..	..	..
1861	Truro	900	..	..	..	900	J. W. Buller, M.P.	10,709	11,949	22,658
1862	Wells	900	..	..	..	900	Sir T. D. Acland, Bart.	15,201	14,220	29,421
1863	Exeter	900	..	..	..	900	Marquis of Bath	10,578	4,775	15,353
1864	Bristol	1000	106	..	50	1156	Earl Fortescue	15,635	19,284	34,919
1865	Hereford	900	358	..	..	1258	Lord Taunton	22,377	65,678	88,055
1866	Salisbury	900	..	..	..	..	Earl of Portsmouth	16,575	35,261	51,836
1867	Salisbury	..	57	..	..	957	J. Tremayne	7,288	18,737	26,025
1868	Falmouth	900	..	..	..	900	Sir J. T. B. Duckworth, Bart.	7,502	16,702	24,204
1869	Southampton	900	132	..	18	1050	Earl of Carnarvon	11,393	19,495	30,888
1870	Taunton	900	..	..	..	900	Sir S. H. Northcote, Bart., C.R., M.P.	15,340	41,290	56,630
1871	Guildford	900	110	..	..	1010	Earl of Cork	17,952	33,653	51,605
1872	Dorchester	800	..	..	10	810	Duke of Marlborough, K.G.	10,636	23,406	34,062
1873	Plymouth	800	..	400	..	1200	Earl of Mount-Edgumbe	12,791	21,517	34,308
1874	Bristol	800	403	..	..	1203	Sir Massey Lopes, Bart., M.P.	37,329	72,791	110,120
1875	Croydon	800	245	..	..	1045	R. Benyon, M.P.	14,518	26,028	40,546
1876	Hereford	800	381	..	..	1181	Earl of Ducie	16,396	32,645	49,041
1877	Bath	800	215	..	..	1015	Marquis of Lansdowne	27,625	48,852	76,477
1878	Oxford	800	..	170	6	976	Earl of Jersey	12,414	26,995	39,409
1879	Exeter	800	..	..	10	810	Earl of Morley	14,634	40,533	55,167
1880	Worcester	800	..	254	..	1054	Earl of Coventry	8,415	37,675	46,090

ANNUAL EXHIBITIONS—continued.

Year.	Place Visited.	Local Subscription.	Prizes.			Total Local Contribution.	President.	Admissions.			
			Local Committee.	Local Societies.	Local Residents.			On 5/- Day.	On 2/6 Days.	On 1/- Days.	Total.
1881	Tunbridge Wells	£ 800	£ 245	£ 34	£ ..	£ 1079	Marquis of Abergavenny	..	13,368	33,236	46,604
1882	Cardiff . .	800	200	198	17	1215	Lord Tredegar	..	23,941	38,680	62,621
1883	Bridgwater . .	800	78	..	..	878	Lord Brooke, M.P.	..	17,171	31,241	48,412
1884	Maldstone . .	800	310	33	75	1218	Viscount Holmesdale	..	13,501	31,053	44,554
1885	Brighton . .	800	227	33	82	1142	Viscount Hampden	..	9,637	39,851	49,488
1886	Bristol . .	800	525	..	..	1325	Lord Carlingford	..	29,580	70,999	100,579
1887	Dorchester . .	800	..	112	..	912	Earl of Ilchester	..	8,860	29,846	38,706
1888	Newport (Mon.)	800	100	..	..	900	Lord Tredegar	..	14,878	38,567	53,445
1889	Exeter . .	800	..	..	10	810	Lord Clinton	..	16,405	36,195	52,600
1890	Rochester . .	800	294	..	26	1120	Earl of Darnley	..	3,480	48,314	51,794
1891	Bath . .	800	50	103	100	1053	Earl Temple	..	23,510	52,185	75,695
1892	Swansea . .	800	200	100	10	1110	Sir J. D. T. Llewellyn, Bart.	..	18,364	54,609	72,973
1893	Gloucester . .	800	400	..	..	1200	Lord Fitzhardinge	..	14,272	40,368	54,640
1894	Guildford . .	800	174	..	10	984	Earl of Onslow	..	8,671	29,813	38,484
1895	Taunton . .	800	85	160	10	1055	Viscount Portman	..	13,181	30,111	43,292
1896	St. Albans . .	800	132	..	..	932	Earl of Clarendon	..	12,056	22,380	34,436
1897	Southampton . .	800	50	..	..	850	Lord Montagu of Beaulieu	..	8,284	33,750	42,034
1898	Cardiff . .	800	200	..	..	1000	Lord Windsor	..	13,101	42,501	55,602
1899	Exeter . .	800	..	225	5	1030	Lord Clinton	..	16,091	39,832	55,923
1900	Bath . .	800	100	150	10	1060	Marquis of Bath	954	11,601	36,814	49,369
1901	Croydon . .	800	115	..	..	915	(H.R.H. The Duke of Cornwall and York, K.G.)	1,196	9,362	30,693	41,251
1902	Plymouth . .	800	105	100	36	1041	Earl of Morley	842	12,629	40,565	54,036
1903	Bristol . .	800	434	50	61	1345	Duke of Beaufort	..	34,528	74,352	108,880
1904	Swansea . .	800	350	..	..	1150	Lord Windsor	..	28,265	50,562	78,827
1905	Nottingham . .	800	..	218	..	1018	Duke of Portland, K.G.	..	8,913	45,964	54,877
1906	Swindon . .	800	..	200	50	1050	Earl of Radnor	..	7,838	42,013	49,851

ANNUAL EXHIBITIONS—continued.

Year.	Place Visited.	Local Subscrip- tion.	Prizes.			Total Local Contri- bution.	President.	Admissions.				
			Local Com- mittee.	Local Societies.	Local Resi- dents.			On 5/- Day.	On 2/6 Days.	On 3/- Days.	On 1/ Days.	Total.
1907	Newport (Mon.)	£ 800	£ 201	£ 51	£ 29	£ 1081	H.R.H. The Prince of Wales, K.G.	..	16,236	37,819	54,055	
1908	Dorchester	800	100	25	..	925	Lord Digby	..	12,227	20,350	32,577	
1909	Exeter	800	..	100	..	900	Lord Clinton	..	14,898	41,891	56,789	
1910	Rochester and Chatham	800	117	..	..	917	Earl of Darley	..	16,213	20,105	25,997
1911	Cardiff	800	195	110	10	1115	Marquis of Bute	..	13,843	40,935	54,786	
1912	Bath	800	100	100	..	1000	Marquis of Bath	..	12,018	44,700	57,618	
1913	Truro	800	35	115	39	918	Viscount Falkmouth	..	17,957	67,805	85,762	
1914	Swansea	800	301	..	..	1101	Sir J. T. D. Llewelyn, Bart.	..	7,700	28,013	35,773
1915	Worcester	400	..	257	..	657	The Earl of Coventry	..				
1916	No Shows						The Earl of Coventry	..	4/-	2/-		
to 1919												
1920	Salisbury	800	24	105	131	1060	The Earl of Radnor	..	19,392	25,255	44,647	
1921	Bristol	800	1000	354	..	2154	The Lord Bledisloe, K.B.E.	5105	36,068	58,473	99,646	
1922	Plymouth	800	132	281	..	1213	H.R.H. The Prince of Wales, K.G.	4124	19,289	34,856	58,269	
1923	Swansea	800	295	..	200	1295	H.R.H. The Prince of Wales, K.G.	434	12,286	78,102	115,345	
1924	Taunton	800	29	100	..	929	Sir Dennis F. Boles, Bart. C.B.E.	2267		17,882	45,963	
1925	Maidstone	800	122	100	..	1022	Col. F. S. W. Cornwallis, C.B.E.	2019	3,618	7,206	38,496	
1926	Watford	800	28	171	..	999	The Earl of Clarendon	1442	2,667	14,271	23,249	
1927	Bath	800	149	..	..	949	H.R.H. The Duke of York, K.G.	2674	6,784	11,961	28,093
1928	Dorchester	800	184	100	13	1097	The Rt. Hon. Lord Wyndford, D.S.O.				49,512	

MEMBERS' PRIVILEGES.

ANALYSES OF FERTILISERS, FEEDING STUFFS, WATERS, SOILS, &c.

Applicable only to the case of Persons who are not commercially engaged in the manufacture or sale of any substance sent for Analysis).

Members of the Bath and West and Southern Counties Society, who may also be Members of other Agricultural Societies, are particularly requested in applying for Analyses, to state that they do so as Members of the first-named Society.

The following are the rates of charges for Chemical Analyses to Members of the Society.

These privileges are applicable only when the analyses are for *bona-fide* agricultural purposes, and are required by Members of the Society for their own use and guidance in respect of farms or land in their own occupation and within the United Kingdom.

The analyses are given on the understanding that they are required for the individual and sole benefit of the Member applying for them, and must not be used for other persons, or for commercial purposes.

Land or estate agents, bailiffs, and others, when forwarding samples are required to state the names of those Members on whose behalf they apply.

Members are also allowed to send for analysis under these privileges, any manures or feeding-stuffs to be used by their outgoing tenants, or which are to be given free of cost to their occupying tenants.

The analyses and reports may not be communicated to either vendor or manufacturer, except in cases of dispute.

Members are requested, when applying for an analysis, to quote the number in the subjoined schedule under which they wish it to be made.

No		
1.	An opinion of the purity of bone-dust or oil-cake (each sample)	2s. 6d.
2.	An analysis of sulphate or muriate of ammonia, or of nitrate of soda, together with an opinion as to whether it be worth the price charged	5s.
3.	An analysis of guano, showing the proportion of moisture, organic matter, sand, phosphate of lime, alkaline salts and ammonia, together with an opinion as to whether it be worth the price charged	10s.
4.	An analysis of mineral superphosphate of lime for soluble phosphates only, together with an opinion as to whether it be worth the price charged	5s.
5.	An analysis of superphosphate of lime, dissolved bones, etc., showing the proportions of moisture, organic matter, sand, soluble and insoluble phosphates, sulphate of lime and ammonia, together with an opinion as to whether it be worth the price charged	10s.
6.	An analysis of bone-dust, basic slag, or any other ordinary artificial manure, together with an opinion as to whether it be worth the price charged	10s.
7.	An analysis of compound artificial manures, animal products, refuse substances used for manure, etc.	from 10s. to £1
8.	An analysis of limestone, showing the proportion of lime	7s. 6d.
9.	An analysis of limestone, showing the proportion of lime and magnesia	10s.
10.	An analysis of limestone or marls, showing the proportion of carbonate, phosphate, and sulphate of lime and magnesia, with sand and clay	10s.
11.	Partial analysis of a soil, including determinations of clay, sand, organic matter, and carbonate of lime	£1
12.	Complete analysis of a soil	£3
13.	An analysis of oil-cake or other substances used for feeding purposes, showing the proportion of moisture, oil, mineral matter, albuminous matter, and woody fibre as well as of starch, gum, and sugar in the aggregate; and an opinion of its feeding and fattening or milk-producing properties	10s.
14.	Analysis of any vegetable product	10s.
15.	Determination of the "hardness" of a sample of water before and after boiling	5s.
16.	Analysis of water of land-drainage, and of water used for irrigation	£1
17.	Analysis of water used for domestic purposes	£1 10s.
18.	An analysis of milk (to assist Members in the management of their Dairies and Herds, <i>bona-fide</i> for their own information and not for trade purposes, nor for use in connection with the Sales of Food and Drugs Acts)	5s.
19.	Personal consultation with the Consulting Chemist. (To prevent disappointment it is suggested that Members desiring to hold a consultation with the Consulting Chemist should write to make an appointment)	5s.
20.	Consultation by letter	5s.
21.	Consultation necessitating the writing of three or more letters	10s.

Members wishing to exercise their privileges on the above-named terms, should forward their samples for examination *by post or parcel prepaid*, to the Consulting Chemist, DR. JOHN AUGUSTUS VOELCKER, M.A., F.I.C., Stuart House, 1, Tudor Street, London, E.C.

The fees for analysis must be sent to the Consulting Chemist at the time of application.

GUIDE TO PURCHASERS OF FERTILISERS AND FEEDING STUFFS.

Purchasers are recommended in every case to insist upon having an *Invoice* given to them. This invoice should set out clearly:—

In the case of **Fertilisers**—

- (1) The **name** of the fertiliser ;
- (2) Whether the fertiliser be artificially **compounded** or not ;
- (3) The **analysis** guaranteed in respect of the principal fertilising ingredients.

In the case of **Feeding-Stuffs**—

- (1) The **name** of the article ;
- (2) The **description** of the article ; whether it has been made from one substance or seed only, or from more than one ;
- (3) The **analysis** guaranteed in respect of Oil and Albuminoids.

NOTE.—The use of terms “Linseed-cake,” “Cotton-cake,” etc., implies that these cakes shall be “pure,” and purchasers are recommended to insist upon these terms being used without any qualification, such as “95 per cent.,” “as imported,” etc. “Oil-cake” should be avoided.

Members of the Society should see that the **Invoices** agree accurately with the orders given by them, and, in giving these orders, they should stipulate that the goods come up to the guarantee set out in the following list, and that they be sold **subject to the analysis and report of the Consulting Chemist of the Bath and West and Southern Counties Society.**

FERTILISERS.

Raw Bones, Bone-meal, or Bone-dust to be guaranteed “**PURE**,” and to contain not less than 45 per cent. of Phosphate of Lime, and not less than 4 per cent. of Ammonia.

Steamed or “Degelatinised” Bones to be guaranteed “**PURE**,” and to contain not less than 55 per cent. of Phosphate of Lime, and not less than 1 per cent. of Ammonia.

Mineral Superphosphate of Lime to be guaranteed to contain a certain percentage of “Soluble Phosphate.” (From 25 to 28 per cent. of Soluble Phosphate is an ordinarily good quality.)

Dissolved Bones to be guaranteed to be “made from raw bone and acid only,” and to be sold as containing stated percentages of Soluble Phosphate, Insoluble Phosphates, and Ammonia.

Compound Artificial Manures, Bone Manures, Bone Compounds, etc., to be sold by analysis stating the percentages of Soluble Phosphate, Insoluble Phosphates and Ammonia contained.

Basic Slag to be guaranteed to contain a certain percentage of Phosphoric Acid and to be sufficiently finely ground that 80 to 90 per cent. passes through a sieve having 10,000 meshes to the square inch.

Peruvian Guano to be described by that name, and to be sold by analysis stating the percentages of Phosphates and Ammonia.

Sulphate of Ammonia to be guaranteed to be “**PURE**,” and to contain not less than 24 per cent. of Ammonia.

Nitrate of Soda to be guaranteed to be “**PURE**,” and to contain 95 per cent. of Nitrate of Soda.

FEEDING-STUFFS.

Linseed Cake, Cotton Cake (Decorticated and Undecorticated), and **Rape Cake** (for feeding purposes) to be pure, *i.e.*, prepared *only* from one kind of seed from which their name is derived, and to be in sound condition. The report of the Consulting Chemist of the Bath and West and Southern Counties Society to be conclusive as to the "purity" or otherwise of any feeding-stuffs. The percentages of Oil and Albuminoids must also be guaranteed.

Mixed Feeding Cakes, Meals, etc., to be sold on a guaranteed analysis.

All Feeding-Stuffs to be sold in sound condition, and to contain nothing of an injurious nature or worthless for feeding purposes.

INSTRUCTIONS FOR SELECTING AND SENDING SAMPLES FOR ANALYSIS.

GENERAL RULES.

1. A sample taken for analysis should be fairly *representative of the bulk* from which it has been drawn.
2. The sample should reach the Analyst *in the same condition* as it was at the time when drawn.

FERTILISERS.

When Fertilisers are delivered in bags, select four or five of these from the bulk, and either turn them out on a floor and rapidly mix their contents, or else drive a shovel into each bag and draw out from as near the centre as possible a couple of shovelfuls of the manure, and mix these quickly on a floor.

Halve the heap obtained in either of these ways, take one-half (rejecting the other) and mix again rapidly, flattening down with the shovel any lumps that appear. Repeat this operation until at last only some three or four pounds are left.

From this fill three tins, holding from $\frac{1}{2}$ lb. to 1lb. each, mark, fasten up and seal each of these. Send one for analysis, and retain the others for reference.

Or—the manure may be put into glass bottles provided with well-fitting corks, the bottles should be labelled and the corks sealed down. The sample sent for analysis can be packed in a wooden box and sent by post or rail.

When manures are delivered in bulk, portions should be successively drawn from *different parts* of the bulk, the heap being turned over now and again. The portions drawn should be thoroughly mixed, sub-divided, and, finally, samples should be taken as before, except that when the manure is coarse and bulky it is advisable to send larger samples than when it is in a finely-divided condition.

FEEDING-STUFFS.

Linseed, Cotton, and other Feeding Cakes.—If a single cake be taken, three strips should be broken off right across the cake and from the middle portion of it, one piece to be sent for analysis, and the other two retained for reference. Each of the three pieces should be marked, wrapped in paper, fastened up and sealed. The piece forwarded for analysis can be sent by post or rail.

A more satisfactory plan is to select four to six cakes from different parts of the delivery, then break off a piece about four inches wide from the middle of each cake, and pass these pieces through a cake-breaker. The broken cake should then be well mixed, and three samples of about 1lb. each should be taken and put in tins or bags duly marked, fastened, and sealed as before. One of

these lots should be sent for analysis, the remaining two being kept for reference. It is advisable also, with the broken pieces, to send a small strip from an unbroken cake.

Feeding Meals, Grain, etc.—Handfuls should be drawn from the centre of half-a-dozen different bags of the delivery; these lots should then be well mixed, and three $\frac{1}{2}$ lb. tins or bags filled from the heap, each being marked, fastened up, and sealed. One sample is to be forwarded for analysis and the others retained for reference.

SOILS, WATERS, &c.

Soils.—Have a wooden box made, 6 inches in length and width, and from 9 to 12 inches deep, according to the depth of soil and subsoil of the field. Mark out in the field a space of about 12 inches square; dig round in a slanting direction a trench, so as to leave undisturbed a block of soil and its subsoil 9 to 12 inches deep; trim this block to make it fit into the wooden box, invert the open box over it, press down firmly, then pass a spade under the box and lift it up gently, turn over the box, nail on the lid, and send by rail. The soil will then be received in the position in which it is found in the field.

In the case of very light, sandy, and porous soils, the wooden box may be at once inverted over the soil and forced down by pressure, and then dug out.

Waters.—Samples of water are best sent in glass stoppered Winchester bottles holding half a gallon. One such bottle is sufficient for a single sample. Care should be taken to have these scrupulously clean. In taking a sample of water for analysis it is advisable to reject the first portion drawn or pumped, so as to obtain a sample of the water when in ordinary flow. The bottle should be rinsed out with the water that is to be analysed, and it should be filled nearly to the top. The stopper should be secured with string, or be tied over with linen or soft leather. The sample can then be sent carefully packed either in a wooden box with sawdust, etc., or in a hamper with straw.

Milk.—A pint bottle should be sent in a wooden box.

GENERAL INSTRUCTIONS.

Time for Taking Samples.—All samples, both of fertilisers and feeding-stuffs, should be taken as soon after their delivery as possible, and should reach the Analyst within *ten days* after delivery of the article. In every case it is advisable that the Analyst's certificate be received before a fertiliser is sown or a feeding-stuff is given to stock.

Procedure in the event of the Vendor wishing Fresh Samples to be Drawn.—Should a purchaser find that the Analyst's certificate shows a fertiliser or feeding-stuff not to come up to the guarantee given him, he may inform the vendor of the result and complain accordingly. He should then send to the vendor *one* of the two samples which he has kept for reference. If, however, the vendor should demand that a fresh sample be drawn, the purchaser must allow this, and also give the vendor an opportunity of being present, either in person or through a representative whom he may appoint. In that case, three samples should be taken in the presence of both parties with the same precautions as before described, *each* of which should be duly packed up, labelled and *sealed* by both parties. One of these is to be given to the vendor, one is to be sent to the Analyst, and the third is to be kept by the purchaser for reference or future analysis if necessary.

All samples intended for the Consulting Chemist of the Society should be addressed (postage or carriage prepaid), to Dr. J. AUGUSTUS VOELCKER, M.A., F.I.C., Stuart House, 1, Tudor Street, New Bridge Street, London, E.C. Separate letters of instruction should be sent at the same time.

DORCHESTER MEETING,**MAY 22, 23, 24, 25 and 26, 1928.****MONEY PRIZES.**

HORSES	..	..	..	..	..	..	£1,154	5	0	cxxxix
CATTLE	..	..	..	..	..	..	1,543	15	0	xxxxviii
SHEEP	..	..	..	..	..	..	691	0	0	cxliv
GOATS	..	..	..	..	..	..	42	15	0	cxlvi
PIGS	..	..	..	..	..	..	577	2	0	cxlvii
CIDER	..	..	..	..	..	..	60	0	0	cl
CHEESE	..	..	..	..	..	..	93	0	0	cl
CREAM CHEESE, BUTTER AND CREAM	..	..	..	..	..	..	52	10	0	cli
BUTTER-MAKING	..	..	..	..	..	..	38	0	0	cli
SHOEING	..	..	..	..	..	..	30	0	0	clii
SHEARING	..	..	..	..	..	..	12	0	0	clii
POULTRY	..	..	..	..	..	..	228	0	0	cliii
SMALL HOLDINGS	..	..	..	..	..	..	70	0	0	clv
							<hr/>			
							£4,592	7	0	

DONORS OF MEDALS, PLATE, Etc.

H.R.H. The Prince of Wales, K.G.	Red Poll Cattle Society
Dorchester Agricultural Society	Welsh Black Cattle Society
Bath and West Society	Sussex Herd Book Society
Shire Horse Society	Ayrshire Cattle Society
Bath Corporation	British Kerry Cattle Society
Hunters' Improvement and National	Dexter Cattle Society
Light Horse Breeding Society	English Jersey Cattle Society
Arab Horse Society	English Guernsey Cattle Society
Hackney Horse Society	Southdown Sheep Society
National Pony Society	Sir F. H. Bathurst, Bart., D.S.O.
J. C. Duffus, Esq.	British Goat Society
A Member of the Society	Large Black Pig Society
Dorchester Local Committee	National Pig Breeders' Association
British Show Jumping Association	Gloucestershire Old Spots Pig Society
Devon Cattle Breeders' Society	F. H. Turnbull, Esq.
Shorthorn Society	Bennett and Howard
Aberdeen-Angus Cattle Society	Wessex Saddleback Pig Society
English Aberdeen-Angus Cattle Association	

DONORS OF MONEY PRIZES.

Bath and West and Southern Counties Society	..	..	£3,464	7	6
Dorchester Agricultural Society	..	..	100	0	0
Dorchester Local Committee	..	..	187	15	0
The President (Lord Wynford, D.S.O.)	..	..	10	0	0
Mayor of Dorchester	..	..	3	2	0
Shire Horse Society (or Medal)	..	..	7	0	0
Suffolk Horse Society	..	..	20	0	0
Arab Horse Society	..	..	25	0	0
Dartmoor Pony Society	..	..	10	0	0
Exmoor Pony Society	..	..	10	0	0
Devon Cattle Breeders' Society	..	..	47	0	0
South Devon Herd Book Society	..	..	15	5	0
Shorthorn Society	..	..	30	0	0
Dairy Shorthorn Association	..	..	20	0	0
Hereford Herd Book Society	..	..	20	0	0
British Friesian Cattle Society	..	..	75	10	0
English Aberdeen-Angus Cattle Association	..	..	18	0	0
Red Poll Cattle Society	..	..	20	0	0
Welsh Black Cattle Society	..	..	10	0	0
Meyrick, Sir Geo.	..	..	15	0	0
Ayrshire Cattle Society (The English Committee)	..	..	20	0	0
Blue Albion Cattle Society	..	..	18	0	0
English Jersey Cattle Society	..	..	15	0	0
English Guernsey Cattle Society	..	..	25	0	0
British Kerry Cattle Society	..	..	10	0	0
Dexter Cattle Society	..	..	15	0	0
Devon Longwoolled Sheep Breeders' Society	..	..	10	0	0
Kent or Romney Marsh Sheep Breeders' Association	..	..	17	0	0
Southdown Sheep Society	..	..	17	0	0
Hampshire Down Sheep Breeders' Association	..	..	30	0	0
Oxford Down Sheep Breeders' Association	..	..	10	0	0
Dorset Horn Sheep Breeders' Association	..	..	30	0	0
Dorset Down Sheep Breeders' Association	..	..	37	0	0
Exmoor Horn Sheep Breeders' Society	..	..	17	0	0
Suffolk Sheep Society	..	..	10	0	0
Ryeland Flock Book Society	..	..	15	0	0
Kerry Hill Flock Book Society	..	..	12	0	0
British Goat Society	..	..	17	7	6
Large Black Pig Society	..	..	15	0	0
National Pig Breeders' Association	..	..	49	0	0
Gloucester Old Spots Pig Society	..	..	20	0	0
Wessex Saddleback Pig Society	..	..	15	0	0
National Long White Lop-Eared Pig Society	..	..	15	0	0
Dorset County Agricultural Committee	..	..	45	0	0

An Animal can be entered in as many Classes as it is eligible for on payment of an additional fee in each Class. No additional fee is, however, payable in the case of those Prizes headed as Champion or Special Prizes.

PRIZES.

£100 towards the Prizes are contributed by the Dorchester Agricultural Society.

HORSES.

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

SUFFOLK.

(Registered or eligible for registration in the Suffolk Horse Society's Stud Book).

Animals entered in Classes 1 to 5 must be in the Yard before 8 a.m. on Tuesday, May 22, and must remain in the Yard till 1 p.m. on Thursday, May 24, when they must be removed from the Yard.

Entry Fees, including Box: Classes 1 and 3 to 5, Members, 25/-, Non-Members, 50/-. Class 2, Members, 5/-, Non-Members, 10/- each entry. Entries close March 31st, or at double fees, April 7th.

The first prizes in Classes 1 and 3 are contributed by the Suffolk Horse Society.

Judge—S. WOODIWISS, Graveleys, Great Waltham, Chelmsford, Essex.

CLASS.

1.—MARE, in-foal, or with foal at foot	10	5	3
2.—COLT or FILLY FOAL, produce of Mare in Class 1	5	3	
(NOTE.—Foals must be entered in Class 2 or they cannot compete).			
3.—GELDING (by a registered sire), foaled in or before 1924 ..	10	5	3
4.—FILLY, foaled in 1925 or 1926	10	5	3
5.—STALLION, foaled in 1925 or 1926	10	5	3

SHIRE.

(Registered or eligible for registration in the Shire Horse Society's Stud Book).

Animals entered in Classes 6 to 10 must arrive in the Yard after 4 p.m. on Thursday, May 24 and before 8 a.m. on Friday, May 25, and must remain in the Yard until 6 p.m. on Saturday, May 26.

Entrance Fees.—Classes 6 to 10, including Box: Members, 25/-; Non-Members, 50/- each entry. Entries close March 31st, or at double fees, April 7th.

Judge—T. FOWLER, Stud Farm, Tring.

6.—MARE, in-foal, or with foal at foot	15	10	3
7.—FILLY, foaled in 1927	10	5	3
8.—FILLY, foaled in 1926	10	5	3
9.—FILLY, foaled in 1925	10	5	3
10.—STALLION, foaled in 1926 or 1927	10	5	3

MEDALS.

- Offered by the Shire Horse Society under Condition 47.
- (A) A Gold Medal, or the sum of £5, for the best Mare or Filly in the Shire Horse Classes, the property of a Member of the Bath and West Society elected not less than six months previous to March 31, 1928, and to the Breeder of the winner under the Condition stated, a Prize of 5
- (B) "THE CITY OF BATH CHALLENGE VASE," Presented by the Corporation of Bath (Cedric Chivers, Mayor, 1928), to be competed for annually and to be held by the winner for one year. For the Best Shire Stallion exhibited. 2

First Prize.	Second Prize.	Third Prize.
£	£	£

ANY AGRICULTURAL BREED.

Animals entered in Class 11 must arrive in the Yard after 4 p.m. on Thursday, May 24, and before 8 a.m. on Friday, May 25, and must remain in the Yard until 6 p.m. on Saturday, May 26.

Entry Fees.—Class 11, including Box: Members, 25/-; Non-Members, 50/- each. Entries close March 31 or at double fees, April 7. Class 12, without Box: Members, 5/-; Non-Members, 10/- each entry. Entries close 12 noon on May 24.

The prizes in Classes 11 and 12 and the second and third Carters' Prizes are offered by the Dorchester Local Committee, and the first Carters' Prize by His Worship the Mayor of Dorchester.

Judge—T. FOWLER, Stud Farm, Tring.

CLASS.

- | | | | |
|--|---|---|---|
| 11.—Cart Mare or Gelding, not less than 4 years old, the property of a resident in the County of Dorset .. | 6 | 3 | 1 |
|--|---|---|---|

CHALLENGE CUP.

- (C) Offered by Dorchester Agricultural Society for the Best Exhibit in Classes 6 to 11, the property of an exhibitor residing in Dorset, Devon or Somerset. The Cup to be won twice in succession or three times in all, before becoming the absolute property of the winner.

Animals entered in Class 12 must be in the Yard by 8 a.m. on Friday, May 25, and can leave the Yard as soon as they have been judged and paraded.

- | | | | |
|--|---|---|---|
| 12.—Pair of Horses, the property of a Farmer resident in the County of Dorset, to be shown in Harness .. | 6 | 3 | 1 |
|--|---|---|---|

(75 per cent. of points for Horses, 25 per cent. of points for Harness which must not be brand new.)

SPECIAL PRIZES.

To the Carters of the Prize Winners in Class 12	20/-	15/-	10/-
---	------	------	------

HUNTER.

Entry Fees, Classes 13 and 15 to 17, including Box: Members, 25/-; Non-Members, 50/- Class 14, Members, 5/-; Non-Members, 10/- each entry. Entries close March 31, or at double fees, April 7.

Animals entered in Classes 13 to 17 must be in the Yard before 8 a.m. on Tuesday, May 22, and must remain there till 1 p.m. on Thursday, May 24, when they must be removed from the Yard.

Judge—Major G. B. FOSTER, M.F.H., Leysthorpe, Oswaldkirk, Yorks.

- | | | | |
|---|----|----|---|
| 13.—MARE, in-foal, or with foal at foot | 15 | 10 | 3 |
| 14.—COLT or FILLY FOAL, produce of Mare in Class 13 .. | 5 | 3 | |
| (NOTE.—In Class 14 Foals must be entered or they cannot compete.) | | | |
| 15.—FILLY, COLT or GELDING, foaled in 1927 | 10 | 5 | 3 |
| 16.—FILLY, COLT or GELDING, foaled 1926 | 10 | 5 | 3 |
| 17.—FILLY or GELDING, foaled in 1925 | 10 | 5 | 3 |

(For Hunter Riding Classes see page 8).

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

HUNTER—Continued.**SPECIAL LOCAL PRIZES.**

Offered by the Dorchester Local Committee.

- (D) **Best Animals in Classes 15 to 17 exhibited by residents in the County of Dorset**

6 3 1

MEDAL.

Offered by the Hunters' Improvement and National Light Horse Breeding Society, under Condition 48.

- (E) A Gold Medal, or £5 and a Bronze Medal, for the best Hunter Brood Mare in Class 13, registered with a number in the Hunter Stud Book at the time of entry or within a month of the award, not having previously won the above-named Society's Gold Medal as a Brood Mare in 1928, and which must have her foal at foot, or produce a living foal in 1928 to a Thoroughbred Horse or Registered Hunter sire. In the second instance a certificate to that effect must be forwarded before the Medal is sent. Only Prize Winners in the Class will be eligible for the Medal.

ARABS AND PONIES.

Animals entered in Classes 18 to 26 must be in the Yard after 4 p.m. on Thursday, May 24 and before 8 a.m. on Friday, May 25, and must remain in the Yard until 6 p.m. on Saturday, May 26.

Entries Close March 31, or at double fees, April 7.

ARAB.

Animals entered in Class 18 must be registered or accepted for registration in the Arab Horse Stud Book.
£25 towards the prizes in this Class are contributed by the Arab Horse Society.

Entry Fee: 10/- each entry

Judge—Brig.-Gen. J. A. EDWARDS, Farthing Place, Battle, Sussex.

CLASS.

18.—COLT, FILLY or GELDING, foaled in 1925, 1926 or 1927 .. 15 12 8
Fourth £5

SILVER MEDALS.

Offered by the Arab Horse Society.

- (F) Best Colt in Class 18.
(G) Best Filly in Class 18.

POLO AND RIDING PONY.

Animals entered in Classes 19 and 20 must be entered in the National Pony Stud Book or registered in the approved Mare Register.

Entry Fee: 10/- each entry.

Judge—F. J. Balfour, Brierton House, Charlton Kings, Cheltenham.

19.—MARE, not exceeding 15 hands, in foal or with foal at foot 10 5 3
20.—FILLY or GELDING, foaled in 1925, 1926 or 1927 10 5 3

SILVER MEDAL.

Offered by the National Pony Society.

- (H) Best Exhibit in Class 19.

(NOTE.—This Medal will not be awarded unless there is a minimum of 4 entries in the Class).

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

SHETLAND PONY.

Entry Fee: 10/- each entry.

Judge—Rev. A. M. DU PRE, Lund Vicarage, Beverley, Yorks.

CLASS.

21.—MARE, not exceeding 10.2 hands, in foal, or with foal at foot	10	5	3
22.—STALLION, not exceeding 10.2 hands, foaled before 1925	10	5	3

CHAMPION PRIZE.

Offered by J. C. Duffus, Esq. A Silver Cup for the best animal in Classes 21 and 22.

DARTMOOR PONY.

£10 towards the prizes in these Classes are contributed by the Dartmoor Pony Society, and animals must be registered, or eligible for registration, in that Society's Stud Book. Unregistered animals must be registered within one month from the termination of the Show.

Entry Fee: 10/- each entry.

Judge—H. J. KINGWELL, Bow Grange, Totnes, Devon.

23.—MARE, any age, not exceeding 12.2 hands, in foal or with foal at foot	10	5	3
24.—STALLION, any age, not exceeding 12.3 hands	10	5	3

EXMOOR PONY.

Entry Fee: 10/- each entry.

£10 towards the prizes in these Classes are contributed by the Exmoor Pony Society, and animals must be registered, if eligible for registration, in the Exmoor Pony Society's Stud Book, must be shown in "natural condition," and not got up for Show. Stallions must not be exhibited in stallion tackle, i.e., surcingle, side reins, &c. Prize-winning Animals, if not already registered, must be registered and branded within one month after the termination of the Show.

Judge.—TOM PARKMAN, Old Ashway, Dulverton.

25.—MARE, 2 years old and over on May 22, 1928, not exceeding 12.2 hands, to be led	10	5	3
26.—STALLION, 2 years old and over on May 22, 1928, not exceeding 12.3 hands, to be led	10	5	3

RIDING CLASSES.

Horses entered in other Classes can, if eligible, be also entered in the Riding Classes on payment of an additional fee of 5/- for Members and 10/- for Non-Members.

HUNTER.

(For Hunter Breeding Classes, see page 6).

Entry Fees: Classes 27 to 31, including Box: Members, 25/-; Non-Members, 50/-. **Entries close on March 31, or, at double fees, April 7.**

Animals entered in Classes 27 to 31, must be in the Yard before 8 a.m. on Tuesday, May 22, and must remain there till 1 p.m. on Thursday, May 24 when they must be removed from the yard, unless entered in other Classes to be judged on a later day.

Judge—Major GORDON B. FOSTER, M.F.H., Leysthorpe, Oswaldkirk, Yorks.

27.—MARE or GELDING, foaled before 1925, that has not won a prize of £10 or over under saddle at any Show held previous to April 1, 1928.	10	5	3
28.—MARE or GELDING, foaled in 1924	10	5	3
29.—MARE or GELDING, foaled before 1925 and not more than 8 years old, to carry not more than 12 stone 7lbs... .. .	20	10	3

	First Prize. £	Second Prize. £	Third Prize. £
--	----------------------	-----------------------	----------------------

HUNTER—Continued.**CLASS.**

- 30.—MARE or GELDING, foaled before 1925 and not more than 8 years old, to carry over 12 stone 7lbs., and under 14 stone 20 10 3
- 31.—MARE or GELDING, foaled before 1925 and not more than 8 years old, to carry 14 stone or over 20 10 3

SPECIAL LOCAL PRIZES.

Offered by the Dorchester Local Committee.

- (1) Best exhibits in Classes 27 to 31, the property of a resident in the County of Dorset 6 3 1

MEDAL.

Offered by the Hunters' Improvement and National Light Horse Breeding Society under Condition No. 49.

- (J) A Silver Medal, or £1 (at the option of the winner), for the best Hunter Mare or Gelding of any age, exhibited in Classes 27 to 31 by a member of the Hunters' Improvement and National Light Horse Breeding Society, whose application for membership must be lodged within a month of the award.

Only Prize-winners in the Classes will be eligible for this Medal.

HACK AND RIDING PONY.**ENTRIES CLOSE.**

With Box—March 31, or at double fees, April 7.

Without Box—At 12 noon on the day preceding the competition.

Entry Fees: With Box, Members, 25/-; Non-Members, 50/- each entry; Without Box: Members, 5/-; Non-Members, 10/-.

Judge—Major W. G. LAMBARDE, Bradbourne Hall, Sevenoaks, Kent.

Horses entered in Classes 32 to 38 only must be in the Show Yard by 1 p.m. on the day on which they compete, and, with the consent of the Stewards, may leave the Yard as soon as the class has been judged.

- 32.—(Novice Class). HACK MARE or GELDING, any height, that has not won a prize of over £5 in value as a Hack at any show held previous to April 1, 1928, to be ridden on the 2nd day of the show 10 5 2
- 33.—HACK MARE or GELDING, any height, to be ridden on the 3rd day of the Show 10 5 2
- 34.—HACK MARE or GELDING, 15 hands and over, to be ridden and judged by a lady on the 3rd day of the Show 10 5 2
- 35.—HACK MARE or GELDING, under 15 hands, to be ridden on the 4th day of the Show 10 5 2
- 36.—POLO PONY, not over 15 hands, 4 years old and over, to be ridden on the 4th day of the Show and to be judged by a Polo Pony Judge 10 5 2

SILVER MEDAL.

Offered by the National Pony Society under Conditions No. 51.

- (K) Best exhibit in Class 36, subject to there being a minimum of 4 entries in the Class.

CHILDREN'S PONY.

- 37.—PONY, not over 13 hands, suitable for and to be ridden by a child not over 12 years of age last birthday, on the 3rd day of the Show 5 4 2
Fourth £1.
- 38.—PONY, not over 14 hands, suitable for and to be ridden by a child not over 14 years of age last birthday, on the 5th day of the Show 5 4 2
Fourth £1.

Small Silver Cups will be presented to the best Boy and best Girl Riders in these Classes.

First Prize.	Second Prize.	Third Prize.	Fourth Prize.
£	£	£	£

DRIVING AND JUMPING CLASSES.

Horses entered in other Classes can, if eligible, be also entered in the Driving and Jumping Classes on payment of an additional fee of 5/- for Members and 10/- for Non-Members. A covered shed will be provided for exhibits in the Jumping Classes.

Horses entered in the Driving and Jumping Classes only must be in the Show Yard by 1 p.m. on the day on which they compete, and, with the consent of the Stewards, may leave the Yard as soon as the Class has been judged.

ENTRIES CLOSE.

With Box—March 31, or at double fees, April 7.

Without Box—At 12 noon on the day preceding the competition.

Entry Fees: With Box, Members, 25/-; Non-Members, 50/- each entry; Without Box: Members, 5/-; Non-Members, 10/-.

DRIVING.

Judge—R. THOMSON, Cord Linn, Peckham, London.

CLASS.

- | | | | | |
|---|----|---|---|---|
| 39.—(Novice Class). MARE or GELDING, not over 14 hands, that has not previously won a prize of over £5 in value in Single Harness at any show held previous to January 1, 1928, to be driven on the 2nd day of the Show .. | 10 | 5 | 3 | 2 |
| 40.—(Novice Class). MARE or GELDING, over 14 and not over 15 hands, that has not previously won a prize of over £5 in value in Single Harness at any show held previous to January 1, 1928, to be driven on the 2nd day of the Show | 10 | 5 | 3 | 2 |
| 41.—(Novice Class). MARE or GELDING over 15 hands that has not previously won a prize of over £5 in value in Single Harness at any Show held previous to January 1, 1928, to be driven on the 2nd day of the Show | 10 | 5 | 3 | 2 |
| 42.—Pair of MARES or GELDINGS, any height, to be driven in Double Harness on the 3rd day of the Show | 15 | 7 | 3 | 2 |
| 43.—TANDEM, MARES or GELDINGS, any height to be driven on the 3rd day of the Show | 15 | 7 | 3 | 2 |
| 44.—MARE or GELDING, not exceeding 14 hands, to be driven on the 4th day of the Show | 15 | 7 | 3 | 2 |
| 45.—MARE or GELDING, over 14 and not exceeding 15 hands, to be driven on the 4th day of the Show | 15 | 7 | 3 | 2 |
| 46.—MARE or GELDING, over 15 hands, to be driven on the 5th day of the Show | 15 | 7 | 3 | 2 |

MEDAL (L).

Offered by the Hackney Horse Society under Condition No. 50,

(L) A Silver Medal for the best Mare or Gelding exhibited in Single Harness in Classes 39 to 46, to be judged on the 5th day of the Show.

First Second Third Fourth
Prize. Prize. Prize. Prize.
£ £ £ £

JUMPING.

(UNDER SHOW JUMPING ASSOCIATION RULES).

The Society reserves the right to cancel the Classes for Jumping in the event of sufficient entries not being forthcoming. In such case any Entry Fee paid will be returned.

Judge—Sir H. H. A. HOARE, Bart., Stourhead, Zeals, S.O., Wilts.

A Challenge Cup value £50, to be won three times before becoming the absolute property of the winner, is offered in Class 47 by a Member of the Society and the money Prizes by the President (Lt.-Col. Lord Wynford, D.S.O.) and the Dorchester Local Committee. Competition is confined to Officers of the Southern Command. A replica of the Cup will be presented by the Dorchester Local Committee to the winner. Entry Fee, 5/-.

CLASS.

47.—MARE or Gelding, the property of the Government and allotted to an Unit stationed in the Southern Command, or the property of an Officer of the Southern Command, that shall jump over the course in the best form on the 1st day of the Show.	Challenge Cup and 5	5	3	
48.—MARE or GELDING, over 15 hands, that shall jump over the course in the best form on the 2nd day of the Show	10	7	5	2
49.—MARE or GELDING, 15 hands and under, ditto, 2nd day	10	7	5	2
50.—MARE or GELDING, any height, that shall jump over the course in the best form on the 3rd day of the Show	10	7	5	2
51.—MARE or GELDING, any height, that shall jump highest on the 3rd day of the Show	10	7	5	
52.—MARE or GELDING, over 15 hands, that shall jump over the course in the best form on the 4th day of the Show	10	7	5	2
53.—MARE or GELDING, 15 hands and under, ditto, 4th day	10	7	5	2
54.—MARE or GELDING, any height, that shall jump highest on the 5th day of the Show	10	7	5	

CHAMPION CLASS.

	First Prize. £	Second Prize. £	Third Prize. £
55.—MARE or GELDING, any height, having won a Prize in Classes 47 to 54 that shall jump over the course in the best form on the 5th day of the Show ..	20	10	5
(In this Class the whole of the Jumps will be raised at the discretion of the Stewards).			
(In Classes 51 and 54, £1 will be added to the prizes offered, for every six inches over 5 feet cleared by the winning animals).			

SPECIAL PRIZE.

Offered by the British Show Jumping Association to Members of that Association who have paid their Subscriptions for the current year.

M) A Silver Medal to the owner of the Horse making the least number of faults in Class 55, the Horse being a prize winner in the Class and not having previously won the Medal this year.

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

CATTLE.

Entry Fees: Members, 20/-; Non-Members, 40/- each entry.

DEVON.

Judge—C. L. HANCOCK, The Manor House, Cothelstone, Taunton.

£37 towards the prizes in the Devon Classes and the Champion Prize are contributed by the Devon Cattle Breeders' Society.

CLASS.

56.—COW or HEIFER, in-Milk, or in calf, calved in or before 1925	10	5	2
57.—HEIFER, calved in 1926	10	5	2
58.—HEIFER, calved in 1927	10	5	2
59.—DAIRY HEIFER, calved in 1926 or 1927, Dam and Sire's Dam having yielded a minimum of 6,000lbs. Milk during a Government stipulated year, Volume and page of such entries to be stated when entering ..	10	5	2
The Prizes in Class 60 are offered by the Dorchester Local Committee			
60.—DAIRY Cow, in-Milk or in calf, the property of a Member of the Devon Cattle Breeders' Society and of the Dorchester Agricultural Society, and entered in the Dairy Section of the Herd Book	10	5	2
with herdsmen's prizes in addition of	20/-	10/-	
61.—BULL, calved in or before 1925	10	5	2
62.—BULL, calved in 1926	10	5	2
63.—BULL, calved in 1927	10	5	2
64.—DAIRY BULL, calved in 1926 or 1927, entered in the Dairy Section of the Devon Herd Book, Dam and Sire's Dam having yielded a minimum of 6,000lbs. Milk during a Government stipulated year, Volume and page of such entry to be stated when entering ..	10	5	2

SPECIAL PRIZES.

Offered by the Dorchester Agricultural Society.

The Devon Cattle Breeders' Society's Challenge Cup, value £21, for the best exhibit in Class 60. The Cup to be won 3 years in succession or 4 years in all before becoming the absolute property of the exhibitor.

The Dorset Dairy Challenge Bowl, value £10 10s. for the best Bull in Class 64, dam and sires dam having records in the Devon Herd Book of 8,000lbs. Milk. Pedigree, Vol. and Page to be given when entering and printed in Catalogue.

CHAMPION PRIZES.

Offered by H.R.H. the Prince of Wales, K.G.

A Challenge Cup, value £30, for the best Bull exhibited in the Devon Classes, to be won three times in succession or four times altogether before becoming the property of the winner.

Offered by the Devon Cattle Breeders' Society.

Best Animal exhibited in the Devon Classes 10

SOUTH DEVON.

Judge—J. COAKER, Kingston, Kingswear, S. Devon.

£10 towards the Prizes in the South Devon Classes are contributed by the South Devon Herd Book Society.

65.—COW or HEIFER, in-Milk, calved in or before 1925 ..	10	5	2
66.—HEIFER, calved in 1926 or 1927	10	5	2
67.—BULL, calved in or before 1926	10	5	2
68.—BULL, calved in 1927	10	5	2

	First Prize £	Second Prize £	Third Prize £
SHORTHORN.			
Judge—A. W. HICKLING, Wing Old Hall, Rutland.			
CLASS.			
69.—COW or HEIFER, in-Milk, calved in or before 1925	10	5	2
70.—HEIFER, calved in 1926	10	5	2
71.—HEIFER, calved in 1927	10	5	2
72.—BULL, calved in 1924 or 1925	10	5	2
73.—BULL, calved in 1926	10	5	2
74.—BULL, calved in 1927	10	5	2

CHAMPION PRIZE.

Offered by the Shorthorn Society.

Best Bull in the Shorthorn Classes entered in or eligible for entry in Coates's Herd Book, with Silver Medal to the Breeder	10
--	-----------

DAIRY SHORTHORN.

Judge—Major S. P. YATES, Broughton Grange, Banbury.

The First Prizes in Classes 75 and 76 (and a Silver Medal to the Breeder of the winners) are offered by the Shorthorn Society and the First Prize in Class 80 by the Dairy Shorthorn Association.

75.—PEDIGREE COW, in-Milk, calved in or before 1924, eligible for, and entered in Coates's Herd Book, or pedigree sent for such entry previous to the Show, and not having previously won a similar prize offered by the above-named Society in 1928, except at the Royal Agricultural Society's Show, to be milked in the Ring before judging, under Conditions 59	10	5	2
76.—PEDIGREE HEIFER, calved in or after 1925, ditto, ditto ..	10	5	2
77.—PEDIGREE HEIFER, calved in 1926	10	5	2
78.—PEDIGREE HEIFER, calved in 1927	10	5	2
79.—PEDIGREE BULL, calved before 1927	10	5	2
80.—PEDIGREE BULL, calved in 1927, entered or pedigree accepted for entry in Coates's Herd Book and registered or accepted for registration in the Year Book of the Dairy Shorthorn Association. (An animal having taken one of these prizes is not eligible to compete again the same year except at the R.A.S.E. Show). The Prizes will not be awarded in this Class unless there are at least 5 entries and 3 exhibitors	10	5	2

SPECIAL PRIZE.

Offered by the Dairy Shorthorn Association.

Best Bull in Class 80, qualified in accordance with conditions No. 60	10
--	-----------

HEREFORD.

Judge—W. SMITH, The Leen, Pembridge, Herefordshire.

81.—COW or HEIFER, in-Milk, calved before Sept. 1, 1926 ..	10	5	2
82.—HEIFER, calved on or after September 1, 1926	10	5	2
83.—BULL, calved before September 1, 1926	10	5	2
84.—BULL, calved on or after September 1, 1926	10	5	2

CHAMPION PRIZES.

Offered by the Hereford Herd Book Society.

Best registered Cow or Heifer in the Hereford Classes	10
Best registered Bull in ditto —	10

SUSSEX.

Judge—H. C. WICKHAM, Witherenden Mill, Ticehurst, Sussex.

CLASS.

						First Prize. £	Second Prize. £	Third Prize. £
85.—HEIFER, calved in 1926	..	..	..	..	..	10	5	2
86.—HEIFER, calved in 1927	..	..	..	..	..	10	5	2
87.—BULL, any age	..	..	..	..	..	10	5	2

SILVER MEDALS.

Offered by the Sussex Herd Book Society.

Best Cow or Heifer in the Sussex Classes.

Best Bull in Ditto.

BRITISH FRIESIAN.

Judge—W. TWENTYMAN, Moor Court Farm, Sparshott, Winchester.

One fourth of the Prize Money awarded and the Silver Medals in these Classes are offered by the British Friesian Cattle Society, and animals entered must be registered in the B.F.C.S. Herd Book proper, those registered in Supplementary Section not being eligible.

88.—Cow or HEIFER, any age, in-Milk	..	..	..	..	..	10	5	2
89.—HEIFER, not in Milk, calved in 1926	..	..	..	..	..	10	5	2
90.—HEIFER, calved in 1927	..	..	..	..	..	10	5	2
91.—BULL, calved in or before 1925	..	..	..	..	..	10	5	2
92.—BULL, calved in 1926	..	..	..	..	..	10	5	2
93.—BULL, calved in 1927	..	..	..	..	..	10	5	2

SILVER MEDALS.

Best Cow or Heifer in the British Friesian Classes.

Best Bull in ditto.

ABERDEEN-ANGUS.

Judge—J. LESLIE, Lower Ratlake, Hursley, Winchester.

£18 towards the Prizes in the Aberdeen-Angus Classes are contributed by the English Aberdeen-Angus Cattle Association.

94.—Cow or HEIFER, in-Milk, calved before 1st December, 1925	..	..	..	..	..	10	5	2
95.—HEIFER, calved on or after 1st December, 1925	..	..	..	..	..	10	5	2
96.—HEIFER, calved on or after 1st December, 1926	..	..	..	..	..	10	5	2
97.—BULL, calved before 1st December, 1926	..	..	..	..	..	10	5	2
98.—BULL, calved on or after 1st December, 1926	..	..	..	..	..	10	5	2

CHAMPION PRIZES.

Offered by the Aberdeen-Angus Cattle Society.

A Silver Medal for the best Animal in the Aberdeen-Angus Classes.

Offered by the English Aberdeen-Angus Cattle Association.

A Silver Medal for the best Animal of opposite sex to that of the Champion.

A Silver Medal for the best Exhibit bred in England or Wales.

RED POLL.

Judge—J. M. LONGE, Three Yews, Ashill, Iminster.

£20 towards the Prizes in the Red Poll Classes and the Silver Medals are contributed by the Red Poll Cattle Society.

99.—Cow or HEIFER, in-Milk, calved before 1926	..	..	..	..	..	10	5	2
100.—HEIFER, calved in 1926	..	..	..	..	..	10	5	2
101.—HEIFER, calved in 1927	..	..	..	..	..	10	5	2
102.—BULL, calved in or before 1926	..	..	..	..	..	10	5	2
103.—BULL, calved in 1927	..	..	..	..	..	10	5	2

SILVER MEDALS.

Best Cow or Heifer in the Red Poll Classes.

Best Bull in ditto.

First Prize. £	Second Prize £	Third Prize. £
----------------------	----------------------	----------------------

WELSH BLACK.

Judge—Prof. R. G. WHITE, College Farm, Aber, Carnarvonshire.

£10 towards the Prizes in the Welsh Black Classes and the Bronze Medals are contributed by the Welsh Black Cattle Society, and £15 by Sir Geo. Meyrick, and animals must be registered or eligible for registration in the Welsh Black Cattle Herd Book.

CLASS.

104.—COW or HEIFER, in-Milk, calved on or before November 30th, 1925	10	5	2
105.—HEIFER, calved on or between December 1st, 1925 and November 30th, 1926	10	5	2
106.—HEIFER, calved on or after December 1st, 1926	10	5	2
107.—BULL, any age	10	5	2

BRONZE MEDALS.

Best Cow or Heifer in the Welsh Black Classes.

Best Bull in ditto.

AYRSHIRE.

Judge—A. KIRKPATRICK, Barr, Sanquhar.

£20 towards the Prizes in the Ayrshire Classes and the Gold Medal are contributed by the English Committee of the Ayrshire Cattle Herd Book Society, and animals entered must be registered or eligible for registration in the Society's Herd Book.

108.—COW, in-Milk, calved before September 1, 1924	10	5	2
109.—COW or HEIFER, in-Milk, calved on or after September 1, 1924	10	5	2
110.—HEIFER, calved on or after September 1, 1926	10	5	2
111.—BULL, calved on or after September 1, 1926	10	5	2

GOLD MEDAL.

Best animal in the Ayrshire Classes.

BLUE ALBION.

Judge—T. H. SWIRE, Bellaport and Mount Farms, Market Drayton.

£18 towards the Prizes in the Blue Albion Classes are contributed by the Blue Albion Cattle Society, and only animals entered or accepted for entry in the Herd Book are eligible to compete. Animals entered or accepted for entry in the Special and Supplementary Registers are not eligible. The full Herd Book description of each animal entered must be given.

112.—COW or HEIFER, in-Milk, calved before January 1st, 1926	10	5	2
113.—HEIFER, calved in 1926	10	5	2
114.—HEIFER, calved in 1927	10	5	2
115.—BULL, any age	10	5	2

JERSEY.

Judges—Cows and Heifers—A MILLER HALLETT, 202, Rotherhithe Street, London, S.E.16.

Bulls—Col. L. GISBORNE, C.M.G., Lingen Hall, Bucknell, Shropshire.

£15 towards the Prizes in the Jersey Classes are contributed by the English Jersey Cattle Society.

116.—COW, in-Milk, calved before 1925	10	5	2
117.—COW or HEIFER, in-Milk, calved in 1925	10	5	2
118.—HEIFER, in-Milk, calved in or since 1926	10	5	2
119.—BULL, calved before 1926	10	5	2
120.—BULL, calved in 1926	10	5	2
121.—BULL, calved in 1927	10	5	2

	First Prize. £	Second Prize. £	Third Prize. £
--	----------------------	-----------------------	----------------------

GUERNSEY.

**Judge—LORD POLTIMORE, Court Hall, North Molton,
N. Devon.**

£20 towards the Prizes in the Guernsey Classes are contributed by the English Guernsey Cattle Society.

CLASS.

122.—Cow, in-Milk, calved before 1925	10	5	2
123.—HEIFER, in-Milk, calved in 1925	10	5	2
124.—HEIFER, calved in 1926	10	5	2
125.—HEIFER, calved in 1927	10	5	2
126.—BULL, calved in 1924 or 1925	10	5	2
127.—BULL, calved in 1926	10	5	2
128.—BULL, calved in 1927	10	5	2

SPECIAL PRIZE.

Offered by the English Guernsey Cattle Society.

The "Trewithen" Silver Challenge Cup for the best Bull in Classes 126 to 128 whose dam and sire's dam have qualified in accordance with the standard required for entry in the Advanced Register of the English Guernsey Cattle Society, or the Royal Guernsey Agricultural Society, both in milk and butter fat, or alternatively in either milk or butter fat with 30 per cent. above the requirements for entry. The Cup to become the absolute property of an Exhibitor winning it three years in succession.

KERRY.

**Judge—Miss P. de B. BOWEN-COLTHURST, Kerry Cow
Dairy Farms, Lyster de la Haye, Colchester.**

£10 of the Prizes in the Kerry Classes and the Challenge Cup are contributed by the British Kerry Cattle Society.

129.—Cow, in-Milk, any age	10	5	2
130.—HEIFER, calved in 1927	10	5	2
131.—BULL, any age	10	5	2

CHALLENGE CUP.

The "Fitzgerald" Perpetual Silver Challenge Cup, value £52 10s. for the best animal exhibited in the Kerry Classes.

DEXTER.

Judge—Rev. R. L. SIMKIN, Durbridge, Redmarley, Glos.

132.—Cow or HEIFER, in-Milk, calved in or before 1925 ..	10	5	2
133.—HEIFER, calved in 1926 or 1927	10	5	2
134.—BULL, calved before 1927	10	5	2

Offered by the Dexter Cattle Society.

135.—Bull, calved in 1927, whose sire and dam are entered in the English Dexter or Royal Dublin Society's Herd Book	10	3	2
---	----	---	---

SPECIAL PRIZE.

Offered by the Dexter Cattle Society.

The Devonshire Challenge Cup, for the best Animal in the Dexter Classes bred by the Exhibitor, and entered in or eligible for the Dexter Herd Book. The Cup to be won by the same Exhibitor with different animals three years in succession before becoming his absolute property.

The Certificate of Award of the Dexter Cattle Society will be given to the owner of the winning animal on each occasion the Cup is competed for.

Prizes for Milk and Butter Tests for 1928.

cxliii

Animals entered in the Breed Classes can, if eligible, be entered also, on payment of an additional fee of 10/- for Members and 20/- for Non-Members, in the Milk and Butter Test Classes.

MILK TEST.

(See Regulation 62).

Judge—A. F. SOMERVILLE, Dinder House, Wells, Somerset.

CLASS.

	First Prize. £	Second Prize. £	Third Prize. £
136.—Cow, in-Milk, of any breed or cross, under 950lbs. live weight, yielding the largest quantity of milk, of normal character, containing at each time of milking not less than 3 per cent. fat, the period of lactation being taken into consideration ..	10	5	2
137.—Cow, in-Milk, of any breed or cross, 950lbs. live weight or over, ditto, ditto	10	5	2

SILVER CHALLENGE CUPS.

Offered by the Dexter Cattle Society.

The "Hare" Challenge Cup, for the Dexter Cow or Heifer obtaining the greatest number of points in the Milk Test Classes. The Cup to become the property of an Exhibitor winning it 3 years in succession or 5 years in all. The Certificate of Award of the Dexter Cattle Society will be given to the owner of the winning animal.

Offered by the British Kerry Cattle Society.

The "Valencia" Perpetual Silver Challenge Cup, value £15 15s., for the Kerry Cow gaining the highest number of points in the Milk Test Classes.

SPECIAL PRIZE.

Offered by the British Friesian Cattle Society to the owner of the Cow awarded the greatest number of points in the Milk Test Classes, provided that such Cow is a British Friesian. The British Friesian Cattle Society's sliding scale grants will be made to its Members in respect to British Friesian Cows competing and qualifying for such grants

£50

BUTTER TEST.

(See Regulation 62).

Judge—A. F. SOMERVILLE, Dinder House, Wells, Somerset.

138.—Cow, of any breed or cross, under 950lbs. live weight, obtaining the greatest number of points by the practical test of the separator and churn	5	3	2
139.—Cow, of any breed or cross, 950lbs. live weight and over, ditto, ditto	5	3	2

SPECIAL PRIZES.

Offered by the respective Breed Societies.

For the South Devon Cow obtaining the best results	£5 5s.
For the three Jersey Cows obtaining the best results and not less than 42 points	Gold Medal or £10, Silver and Bronze Medals.

(Certificates of Merit will also be awarded to Jersey Cows, 4 years old and under, obtaining 30 points, and Cows over 4 years old, obtaining 35 points. In the event of Cows obtaining the same number of points, the Prize to be awarded to the Cow that has been the longest time in milk.

For the Guernsey Cow obtaining the best results £5

SMALL HOLDERS' CLASSES.

The Prizes in these Classes are offered by the Dorchester Local Committee and are open to residents in the County of Dorset, farming from one to 50 acres, or if over 50 acres, whose rental does not exceed £100 per annum. Animals entered in these Classes only must be in the Yard by 8 a.m. on Friday, May 25, and can be removed after 7 p.m. that day.

Entry Fee: Members, 5/-; Non-Members, 10/- each entry.

140.—Cow of any breed, in-Milk or in Calf	6	3	1
141.—Heifer of any breed, calved since January 1, 1926 ..	6	3	1

First Prize. £	Second Prize. £	Third Prize £
----------------------	-----------------------	---------------------

SHEEP.

Entry Fees: Members, 17/6; Non-Members, 35/- each entry.

DEVON LONGWOOLLED.

Judge—E. LAWRENCE, Veryards, Cullompton, Devon.

£10 towards the Prizes in these Classes are contributed by the Devon Longwoolled Sheep Breeders' Society.

CLASS.

142.—Shearling RAM	10	5	2
143.—Pen of 3 RAM LAMBS, dropped in 1928	10	5	2
144.—Pen of 3 Shearling EWES	10	5	2

KENT OR ROMNEY MARSH.

Judge—H. J. BLACKLOCKS, Beach House, Lydd, Kent.

£17 towards the Prizes in these Classes are offered by the Kent or Romney Marsh Sheep Breeders' Association.

145.—Shearling RAM	10	5	2
146.—Pen of 3 RAM LAMBS, dropped in 1928	10	5	2
147.—Pen of 3 Shearling EWES	10	5	2

SOUTHDOWN.

Judge—H. PADWICK, West Ashling, Chichester.

£17 towards the Prizes in these Classes are offered by the Southdown Sheep Society.

148.—Shearling RAM	10	5	2
149.—Pen of 3 RAM LAMBS, dropped in 1928	10	5	2
150.—Pen of 3 Shearling EWES	10	5	2

SPECIAL PRIZES.

Offered by the Southdown Sheep Society, under Condition 65, subject to there being at least three entries from different competitors.

Silver Medal or £1 for the best Ram or Ram Lamb in the Southdown Classes.

Ditto, for the best pen of Ewes.

HAMPSHIRE DOWN.

Judge—W. M. FLOWER, The Cleeves, Chilmark, Salisbury.

£25 towards the Prizes in these Classes and the Champion Prize are offered by the Hampshire Down Sheep Breeders' Association.

151.—Shearling RAM	10	5	2
152.—RAM LAMB, dropped in 1928	10	5	2
153.—Pen of 3 RAM LAMBS, dropped in 1928	10	5	2
154.—Pen of 3 Shearling EWES	10	5	2
155.—Pen of 3 EWE LAMBS, dropped in 1928	10	5	2

CHAMPION PRIZE.

Best Ram, Ram Lamb or Pen in the Hampshire Down Classes .. 5

OXFORD DOWN.

Judge—J. M. EADY, Thorpe Malsor, Kettering.

156.—Shearling RAM	10	5	2
157.—Pen of 3 RAM LAMBS, dropped in 1928	10	5	2
158.—Pen of 3 Shearling EWES	10	5	2

Offered by the Oxford Down Sheep Breeders' Association and the Prizes will be withheld until the Animals awarded the Prizes are registered in the Flock Book.

159.—Pen of two Ewe Lambs, dropped in 1928	6	3	1
--	---	---	---

First Prize £	Second Prize £	Third Prize £
---------------------	----------------------	---------------------

DORSET HORN.

Judge—L. C. ATTRILL, Bathingbourne, Sandown, I. of Wight.

The Animals entered in Classes 160 and 162 must have been shorn bare in the year of the Show.

£30 towards the Prizes in these Classes are contributed by the Dorset Horn Sheep Breeders' Association, and £10 by the Dorchester Local Committee.

CLASS.			
160.—Shearling RAM	10	5	2
161.—Pen of 3 RAM LAMBS, dropped after November 1, 1927 ..	10	5	2
162.—Pen of 3 Shearling EWES	10	5	2
163.—Pen of 3 EWE LAMBS, dropped after November 1, 1927 ..	10	5	2

NOVICE CLASSES.

Open only to Members of the Dorset Horn Breeders' Association who have not won a prize at the Royal, Bath and West or Royal Counties Shows during the last 3 years.

164.—Pen of 3 Shearling EWES	6	3	1
165.—Pen of 3 EWE LAMBS, dropped after November 1, 1927 ..	6	3	1

CHALLENGE CUP.

Offered by the Dorchester Agricultural Society, to be won twice in succession or 3 times in all before becoming the property of the winner.

Best Pen of Ewe Lambs in the Dorset Horn Classes.

DORSET DOWN.

Judge—R. R. MEAD, Volis, Taunton.

£30 towards the Prizes in these Classes and the Special and Champion Prizes are contributed by the Dorset Down Sheep Breeders' Association, and £10 by the Dorchester Local Committee.

166. Shearling RAM	10	5	2
167.—Pen of 3 RAM LAMBS, dropped in 1928	10	5	2
168.—Pen of 3 Shearling EWES	10	5	2
169.—Pen of 3 EWE LAMBS, dropped in 1928	10	5	2

NOVICE CLASSES.

Open only to Members of the Dorset Down Sheep Breeders' Association, who have not won a prize at the Royal, Bath and West or Royal Counties Shows, during the last 3 years.

170.—Pen of 3 Shearling EWES	6	3	1
171.—Pen of 3 EWE LAMBS, dropped in 1928	6	3	1

SPECIAL PRIZE.

Best Pen in Classes 170 and 171 2

CHAMPION PRIZE.

Best Ram or Pen in Classes 166 to 171 5

EXMOOR HORN.

Judge—T. C. PEARSE, Leigh, Dulverton.

£17 towards the Prizes in these Classes are contributed by the Exmoor Horn Sheep Breeders' Society; and animals must be shown in their wool.

172.—RAM, 2 Shear and upwards	10	5	2
173.—Shearling RAM	10	5	2
174.—Pen of 3 Shearling EWES	10	5	2

SUFFOLK.

Judge—A. H. COBBALD, Jun., Queech Farm, Stutton, Ipswich.

£10 towards the Prizes in these Classes are contributed by the Suffolk Sheep Society.

175.—Shearling RAM	10	5	2
176.—Pen of 3 RAM LAMBS, dropped in 1928	10	5	2
177.—Pen of 3 SHEARLING EWES	10	5	2

CHAMPION PRIZE.

Offered by Sir F. Hervey Bathurst, Bart., D.S.O.

A Silver Cup for the best Ram or Pen in the Suffolk Classes. The Cup to be won three years in succession before becoming the absolute property of the winner.

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

RYELAND.

Judge—W. R. PROSSER, Cefn Brynich, Brecon.

£15 of the Prizes in these Classes are contributed by the Ryeland Sheep Society.

CLASS.

178.—Shearling RAM	10	5	2
179.—Pen of 3 RAM LAMBS, dropped in 1928	10	5	2
180.—Pen of 3 Shearling EWES	10	5	2

KERRY HILL.

Judge—D. M. HUGHES, Stapleton Castle, Presteigne, Radnorshire.

£12 towards the Prizes in these Classes are contributed by the Kerry Hill (Wales) Flock Book Society, and animals must be shown uncoloured. The names and Flock Book number of Rams must be given.

181.—RAM, 2 Shear and upwards	10	5	2
182.—Shearling RAM	10	5	2
183.—Pen of 3 Shearling EWES	10	5	2

CHAMPION PRIZE.

Offered by H.R.H. The Prince of Wales, K.G.

A Challenge Cup, value £20, for the best animal exhibited in Class 182 or 183, to be won three times in succession or four times altogether before becoming the property of the Exhibitor.

(Classes 184 and 185 cancelled).

GOATS.

(For Regulations see Entry Forms).

Entry Fees: Members, 7/6; Non-Members, 10/- each entry.

Judge—S. WOODIWISS, Graveleys, Great Waltham, Essex.

£17 7s. 6d. towards the Prizes in these Classes are contributed through the British Goat Society and the Dorset and West Country Goat Society.

186.—FEMALE GOAT, in-Milk, any age, British Alpine, Toggenburg or British Toggenburg	2 10	1 10	15 0
187.—FEMALE GOAT, in-Milk, any age, Saanen or British Saanen	2 10	1 10	15 0
188.—FEMALE GOAT, in-Milk, any age, Any other Variety	2 10	1 10	15 0
189.—GOATLING, British Alpine, Toggenburg or British Toggenburg, over one but not exceeding two years	2 10	1 10	15 0
190.—GOATLING, any other variety, over one but not exceeding two years	2 10	1 10	15 0
191.—FEMALE KID, British Alpine, Toggenburg or British Toggenburg, not exceeding one year	2 10	1 10	15 0
192.—FEMALE KID, any other variety, not exceeding one year	2 10	1 10	15 0
193.—MILKING COMPETITION for QUALITY (Butter Fat only), quantity and time (two milkings)	2 10	1 10	15 0
194.—MILKING COMPETITION for QUANTITY AND TIME ONLY (three milkings)	2 10	1 10	15 0

Special Prizes offered by the British Goat Society.

A Silver Challenge Cup and a Challenge Certificate for the Best Female Goat over two years that has borne a kid.

A Challenge Certificate for the Best Dual Purpose Goat over two years that has borne a kid.

A Bronze Medal for the Best Female Exhibit.

The Prizes awarded at this Show will also be included in the awards for the British Goat Society's "Breeder's" Perpetual Challenge Cup and "Stud Goat" Challenge Cup.

Note.—To compete for the Dual Purpose Challenge Certificate, a Goat must be exhibited in one of the first three Inspection Classes, and also in the Quality Milking Competition.

First Prize £	Second Prize. £	Third Prize. £
---------------------	-----------------------	----------------------

PIGS.

Entry Fees: Members, 17/6; Non-Members, 35/- each entry.

(For Special Condition as to Classes for Pigs farrowed in 1928 see Regulation 11).

BERKSHIRE.

Judge—J. CROWE, The Manor, Ashe, Overton, Hants.

£9 towards the Prizes in these Classes and the Challenge Cups are contributed by the National Pig Breeders' Association, and ages are calculated to May 22, 1928.

CLASS.

195.—BOAR, exceeding 18 months old	10	5	2
196.—BOAR, not exceeding 18 months old	7	4	2
197.—BREEDING SOW, exceeding 18 months old	10	5	2
198.—BREEDING SOW, not exceeding 18 months old	7	4	2

CHALLENGE CUPS (Value £10 10s. each).

To be won twice in succession or three times in all before becoming the property of the Exhibitor.

Best Boar in the Berkshire Classes.

Best Sow in ditto.

A Silver Medal will be awarded to the Breeder of the prize-winning Animals.

LARGE BLACK.

Judge—H. J. KINGWELL, Bow Grange, Totnes, Devon.

£15 towards the Prizes in these Classes and the Silver Medals are contributed by the Large Black Pig Society.

199.—BOAR, farrowed before May 1, 1927	10	5	2
200.—BOAR, not exceeding 12 months old on May 1, 1928	7	4	2
201.—BOAR, farrowed in 1928	7	4	2
202.—BREEDING SOW, farrowed before May 1, 1927	10	5	2
203.—BREEDING SOW, not exceeding 12 months old on May 1, 1928	7	4	2

SILVER MEDALS.

Best Boar in the Large Black Classes.

Best Sow in ditto.

LARGE WHITE.

Judge—J. DARLINGTON, Pitton Grange, Burliton, Shrewsbury.

£15 towards the Prizes in these Classes and the Champion Prize are offered by the National Pig Breeders' Association.

204.—BOAR, farrowed before July 1, 1927	10	5	2
205.—BOAR, farrowed on or after July 1, 1927	7	4	2
206.—BREEDING SOW, farrowed before 1927	10	5	2
207.—BREEDING SOW, farrowed in 1927	7	4	2
208.—Pair of BREEDING SOWS, farrowed in 1928	7	4	2

CHAMPION PRIZE.

A GOLD MEDAL for the best Animal in the Large White Classes, subject to there being not less than 30 entries, or a **SILVER MEDAL** if not less than 15.

First Prize. £
Second Prize.
Third Prize.

MIDDLE WHITE.

Judge—Major W. LLEWELLEN PALMER, Bearfield, Bradford-on-Avon.

£15 towards the Prizes in these Classes and the Champion Prizes are offered by the National Pig Breeders' Association.

CLASS.

209.—BOAR, farrowed before July 1, 1927	10	5	2
210.—BOAR, farrowed on or after July 1, 1927	7	4	2
211.—BREEDING SOW, farrowed before 1927	10	5	2
212.—BREEDING SOW, farrowed in 1927	7	4	2
213.—Pair of BREEDING SOWS, farrowed in 1928	7	4	2

CHAMPION PRIZES.

GOLD MEDALS for the best Boar and the best Sow in the Middle White Classes, subject to there being not less than 20 entries for Boars or 30 entries for Sows, or **SILVER MEDALS** if not less than 15.

SPECIAL PRIZE.

Offered by His Worship The Mayor of Dorchester.

Best Exhibit in the Middle White Classes by a Member of the Dorchester Agricultural Society, resident in the County of Dorset £2 2s.

TAMWORTH.

Judge—B. I. PHILIP, Botts Green House, near Colehill, Warwickshire.

£10 towards the Prizes in these Classes and the Champion Prize are contributed by the National Pig Breeders' Association.

214.—BOAR, any age	10	5	2
215.—BREEDING SOW, farrowed in or before 1928	10	5	2

CHAMPION PRIZE.

A SILVER MEDAL for the best Animal in the Tamworth Classes, subject to there being not less than 15 entries, or a **BRONZE MEDAL** if not less than 10.

GLOUCESTERSHIRE OLD SPOTS.

Judge—C. E. J. HOBBS, Estate Office, Hardwicke Grange, near Shrewsbury.

£20 towards the Prizes in these Classes are contributed by the Gloucestershire Old Spots Pig Society.

216.—BOAR, farrowed before July 1, 1927	10	5	2
217.—BOAR, farrowed on or after July 1, 1927	7	4	2
218.—BREEDING SOW, farrowed before 1927	10	5	2
219.—BREEDING SOW, farrowed in 1927	10	5	2
220.—Pair of BREEDING SOWS, farrowed in 1928	7	4	2

CHAMPION PRIZES.

Offered through the Gloucestershire Old Spots Pig Society.

The Sir George Watson Challenge Cup, value £21, for the best Animal in the Gloucestershire Old Spots Classes. (The Cup to be won three times by the same Exhibitor with different Animals before becoming his own property).

Offered by F. H. Turnbull, Esq.

The Turnbull Cup, value £14 14s., for the best Boar in the Gloucestershire Old Spots Classes. (The Cup to be won twice by the same Exhibitor with different Animals before becoming his own property).

Offered by Messrs. Bennett and Howard.

The Sir John Anderson Cup for the best Sow in the Gloucestershire Old Spots Classes. (The Cup to be won three times by the same Exhibitor before becoming his own property).

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

WESSEX SADDLEBACK.

Judge—L. C. ATTRILL, Bathingbourne, Sandown, I. of W.

£15 towards the Prizes in these Classes and the Gold Medal are offered by the Wessex Saddleback Pig Society, and all pigs exhibited must be entered or eligible for entry in that Society's Herd Book.

CLASS.

221.—BOAR, farrowed before July 1, 1927	10	5	2
222.—BOAR, farrowed on or after July 1, 1927	7	4	2
223.—BREEDING SOW, farrowed before 1927	10	5	2
224.—BREEDING SOW, farrowed in 1927	7	4	2
225.—Pair of BREEDING SOWS, farrowed in 1928	7	4	2

GOLD MEDAL.

Value £5 5s., for the best Pig exhibited in the Wessex Saddleback Classes and a Silver Medal to the Breeder who is not the exhibitor of the Animal winning the Gold Medal.

NATIONAL LONG WHITE LOP-EARED.

Judge—A. A. PARTRIDGE, Mordref, Plympton.

£15 towards the Prizes in these Classes are contributed by the National Long White Lop-Eared Pig Society.

226.—BOAR, farrowed before July 1, 1927	10	5	2
227.—BOAR, farrowed on or after July 1, 1927	7	4	2
228.—BREEDING SOW, farrowed before 1927	10	5	2
229.—BREEDING SOW, farrowed in 1927	7	4	2
230.—Pair of BREEDING SOWS, farrowed in 1928	7	4	2

BACON PIGS.

Judge—E. T. W. COX, West Hendford, Yeovil.

231.—Pair of PIGS of any breed or first cross (the cross to be stated) between 9 score 10lbs. and 11 score 10lbs. live weight each, best suitable for the Wiltshire cut of Bacon	7	4	2
--	---	---	---

All Pigs in Class 231 will be purchased at the current market price by Messrs. Oake, Woods and Co. (Ld.), Gillingham, Dorset, who will remove them from the Show, kill, and cure the carcasses. Additional prizes will then be awarded for the best Bacon after curing

Offered by the Dorchester Local Committee.

232.—Pair of Bacon Pigs of any breed or first cross (the cross to be stated) between 9 score 10lbs. and 11 score 10lbs. live weight each, fattened by the exhibitor who must be a resident in the County of Dorset	6	3	1
--	---	---	---

SMALL HOLDERS' CLASS.

Offered by the Dorchester Local Committee and confined to residents in the County of Dorset, farming from 1 to 50 acres, or, if over 50 acres, whose rent does not exceed £100 per annum

Exhibits in Class 233 must be in the Yard by 8 a.m., on Friday, May 25, and can be removed after 7 p.m. that day.

Entry Fee: Members, 5/-; Non-Members 10/-, each entry.

233.—Breeding Sow of any breed in farrow or with her litter	6	3	1
---	---	---	---

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

PRODUCE.

CIDER.

(Open to Growers and Makers).

Entry Fees: Members, 3/6; Non-Members, 6/- each entry.

Judge—A. L. SADLER, Lythe Court, Tiverton, Devon.

Cider entered in the Novice Classes can also be entered in the Open Class for which it is eligible.

CLASS.

234.—NOVICE CLASS. Cask of not less than 9 and not more than 30 gallons of CIDER made in 1927 by an Exhibitor who has not previously taken a first prize in any public exhibition	5	3	2
235.—Cask of not less than 9 and not more than 30 gallons of CIDER, made in 1927, of a specific gravity not exceeding 1.015 at 60 deg. Fahr.	5	3	2
236.—12 Quart Bottles of CIDER, made in 1927, ditto	5	3	2
237.—Cask of not less than 9 and not more than 30 gallons of CIDER, made in 1927	5	3	2
238.—12 Quart Bottles of CIDER, made in 1927	5	3	2
239.—12 Quart Bottles of CIDER, made in any year previous to 1927	5	3	2

CHEESE.

Entry Fees: Class 240, Members, 10/-; Non-Members, 20/-. Classes 241 to 243, Members, 7/6; Non-Members, 15/-. Classes 244 to 246, Members, 3/6; Non-Members, 6/-.

Judge—J. H. MACKIE, Park Cottage, Castle Cary.

(These Classes are not open to Professional Teachers.)

240.—Three CHEDDAR CHEESES (not less than 56lbs. each) made in 1927	15	10	5
241.—Three CHEDDAR CHEESES (not over 56lbs. each), made in 1927	10	7	4
242.—Four LOAF or other TRUCKLE CHEDDAR CHEESES, made in 1927	5	3	2
243.—Three CAERPHILLY CHEESES, made in 1928	5	3	2
The Prizes in Classes 244 to 246 are offered by the Dorchester Local Committee.			
244.—Two Cheddar Cheeses, not less than 40lbs. each, made in 1927 by an exhibitor resident in the County of Dorset	5	2	1
245.—One cwt. of Skim Milk Cheese, known as "Dorset Blue"	5	2	1
246.—Makers' Prizes. Two Cheeses of any weight, to be shown by the actual Maker for, but not a relative of, an exhibitor resident in the County of Dorset	3	2	1

Prizes for Cream Cheese, Butter and Cream and Butter-making for 1928.

First Prize.	Second Prize.	Third Prize.	Fourth Prize.
£ s.	£ s.	£ s.	£ s.

CREAM CHEESE, BUTTER AND CREAM.

Entry Fees: Members, 3/6; Non-Members, 6/-.

Judge—Miss A. J. W. NICHOLAS, County Hall, Truro.

(These Classes are not open to Professional Teachers.)

CLASS.

247.—Three Cream or other Soft CHEESES	3	0	2	0	1	0	0	10
248.—2lbs. of Fresh (or very slightly salted) BUTTER	4	0	3	0	2	0	1	0
249.—2lbs. of BUTTER, in the making of which no salt has been used, to be judged on the last day of the Show	4	0	3	0	2	0	1	0
250.—12lbs. of Keeping BUTTER, in a jar or crock, to be delivered to the Secretary 4 weeks before the Show	5	0	4	0	3	0	2	0
251.—Four half-pounds of SCALDED CREAM	3	0	2	0	1	0		

Offered by the Dorchester Local Committee.

252.—3lbs. of Fresh Butter made from Cows other than Channel Island Breeds by an exhibitor resident in the County of Dorset who has never won a prize at the Royal, Bath and West or Royal Counties Shows	3	0	2	0	1	0		
---	---	---	---	---	---	---	--	--

*Offered by Messrs. R. B. Brown and Co., through the Dorchester
Agricultural Society.*

A Silver Challenge Cup, value £2 2s., to be won twice in succession
or three times in all before becoming the absolute property
of the winner, for the best Exhibit in the Butter Classes.

COMPETITIONS.

BUTTER-MAKING.

*(No Winner of a first prize given by this Society for
Butter-making during the last 3 years is eligible
to compete in Classes 253 to 255).*

Entry Fees: Members, 3/6; Non-Members, 6/-.

Judges—

Classes 253 to 256—Miss M. C. TAYLOR, Somerset
Farm Institute, Cannington, nr. Bridgwater.

Class 257—A. TODD, British Dairy Institute, The
University, Reading.

(For Conditions and Regulations see Entry Form.).

253.—NOVICE CLASS. For Competitors who have not hitherto won a prize for Butter-making at the London Dairy Show or the Shows of the Royal Agricultural or Bath and West Society. On the 1st day of the Show ..	4	0	3	0	1	10	1	0
254.—For Men and Women, bona fide workers on a farm. On the 2nd day of the Show ..	4	0	3	0	1	10	1	0

clii *Prizes for Butter-making, Shoeing and Shearing for 1928.*

First Prize.	Second Prize.	Third Prize.	Fourth Prize.
£ s.	£ s.	£ s.	£ s.

BUTTER-MAKING—Continued.

CLASS.

- 255.—For Students who have been through a course of instruction in Butter-making at any County Council School, and who have not previously won a first or second prize at one of the Society's Shows. On the 3rd day of the Show 4 0 3 0 1 10 1 0
- 256.—For Men and Women. On the 4th day of the Show 4 0 3 0 1 10 1 0
- 257.—For Winners of First and Second Prizes in the Butter-making Classes 253 to 256, or at any previous meeting of the Society. On the 5th day of the Show
- 1st Prize. Gold Medal.
- 2nd .. Silver Medal.
- 3rd .. Bronze Medal.

SHOEING.

Entry Fees: Members, 3/6; Non-Members, 6/- each entry.

Judge—W. F. HAYDEN, F.W.C.F., 5, Castle Street West, Banbury.

- 258.—For CART HORSE SHOEING by Smiths. On the 3rd day of the Show 4 0 3 0 2 0 1 0
- 259.—For HUNTER SHOEING by Smiths. On the 4th day of the Show 4 0 3 0 2 0 1 0
- 260.—For SHOEMAKING OF TURNING by Smiths. On the 5th day of the Show 4 0 3 0 2 0 1 0

SPECIAL PRIZES.

"The Capewell Challenge Cup," offered by the Capewell Horse Nail Co. (Ltd.) for the best Competitor in Class 258. The Cup to be won 3 years in succession or 4 times in all before becoming the absolute property of the winner.

Challenge Cup, offered by Messrs. William Martin, Sons and Co., "Dundyvan" Iron and Steel Works, Coatbridge, per Godwin, Warren and Co., Ltd., Bristol, for the Best Competitor in Class 259

An All-Bright "Godwin" Shoe Turning Hammer, by Messrs. Godwin, Warren and Co., for the Best Competitor in Class 260.

SHEARING.

The Prizes in Classes 261 and 262 are offered by the Dorchester Local Committee.

First Prize.	Second Prize.	Third Prize.
£	£	£

- 261.—Best Shearing of 2 Sheep by Competitors 20 years of age and over on the 4th day of the Show .. 3 2 1
- 262.—Best Shearing of 2 Sheep by Competitors under 20 years of age, ditto 3 2 1

POULTRY.

(Under Poultry Club Rules).

Entry Fees: Class 1, Members, 3/-; Non-Members, 5/-;
Classes 2 to 73, Members, 2/-; Non-Members, 3/-;
each entry.

Judges—W. W. BROOMHEAD, Eaglehurst, Wallington Green, Surrey (Classes 1 to 25, 46 to 53 and 56 to 59; H. S. ANTHONY, Home Farm, Euxton, Chorley, Lancs. (Class 1, 26 to 45, 54 to 55 and 60 to 73).

The Birds in Classes 1 to 45 and 56 to 67 must have been hatched previous to January 1st, 1928.

CLASS.

First Prize.	Second Prize.	Third Prize
£ s.	£ s.	£ s.

1.—Any Two Pure Breeds, best mated to cross for producing Table Poultry.—Cock and 3 Hens, bred in 1926 or 1927, the property of one Exhibitor ..	3	0	2	0	1	0
2.—COCHIN OR BRAHMA—Cock or Hen	1	10	1	0	0	10
3.—PLYMOUTH ROCK (Barred)—Cock	1	10	1	0	0	10
4.—Ditto—Hen	1	10	1	0	0	10
5.—Ditto (Any other variety)—Cock	1	10	1	0	0	10
6.—Ditto—Hen	1	10	1	0	0	10
7.—ORPINGTON—(Any variety)—Cock	1	10	1	0	0	10
8.—Ditto—Hen	1	10	1	0	0	10
9.—BARNVELDER—Cock	1	10	1	0	0	10
10.—Ditto—Hen	1	10	1	0	0	10
11.—RHODE ISLAND RED—Cock	1	10	1	0	0	10
12.—Ditto—Hen	1	10	1	0	0	10
13.—SUSSEX (Light)—Cock	1	10	1	0	0	10
14.—Ditto—Hen	1	10	1	0	0	10
15.—SUSSEX (Speckled)—Cock	1	10	1	0	0	10
16.—Ditto—Hen	1	10	1	0	0	10
17.—SUSSEX (Any other variety)—Cock	1	10	1	0	0	10
18.—Ditto—Hen	1	10	1	0	0	10
19.—DORKING (Any variety)—Cock	1	10	1	0	0	10
20.—Ditto—Hen	1	10	1	0	0	10
21.—LANGSHAN—Cock or Hen	1	10	1	0	0	10
22.—WYANDOTTE (White)—Cock	1	10	1	0	0	10
23.—Ditto—Hen	1	10	1	0	0	10
24.—Ditto (Any other variety)—Cock	1	10	1	0	0	10
25.—Ditto—Hen	1	10	1	0	0	10
26.—INDIAN GAME—Cock	1	10	1	0	0	10
27.—Ditto—Hen	1	10	1	0	0	10
28.—FRENCH (including Faverolles)—Cock	1	10	1	0	0	10
29.—Ditto—Hen	1	10	1	0	0	10
30.—MINORCA—Cock	1	10	1	0	0	10
31.—Ditto—Hen	1	10	1	0	0	10
32.—LEGHORN (White)—Cock	1	10	1	0	0	10
33.—Ditto—Hen	1	10	1	0	0	10
34.—Ditto (Any other colour)—Cock	1	10	1	0	0	10
35.—Ditto—Hen	1	10	1	0	0	10
36.—HAMBURG (Any variety)—Cock or Hen	1	10	1	0	0	10
37.—CAMPINE—Cock or Hen	1	10	1	0	0	10
38.—OLD ENGLISH GAME (Black Red, Wheaten or Part-ridge)—Cock	1	10	1	0	0	10
39.—Ditto—Hen	1	10	1	0	0	10
40.—Ditto (Any other colour)—Cock	1	10	1	0	0	10
41.—Ditto—Hen	1	10	1	0	0	10

First Prize.	Second Prize.	Third Prize.
£ s.	£ s.	£ s.

POULTRY—Continued.**CLASS.**

42.—ANGONA—Cock	..	..	..	..	..	1	10	1	0	0	10
43.—Ditto—Hen	..	..	..	..	..	1	10	1	0	0	10
44.—ANY OTHER DISTINCT BREED not previously mentioned (excluding Bantams)—Cock	..	..	..	..	..	1	10	1	0	0	10
45.—Ditto—Hen	..	..	..	..	..	1	10	1	0	0	10

SELLING CLASSES.

46.—ANY DISTINCT BREED—Cock or Cockerel (Price not to exceed £1 ls.)	..	..	..	..	..	1	10	1	0	0	10
47.—ANY DISTINCT BREED—Hen or Pullet (Price not to exceed £1 ls.)	1	10	1	0	0	10

CHICKENS OF 1928.

48.—SUSSEX (Any variety)	..	..	..	..	..	1	10	1	0	0	10
49.—Ditto—Pullet	..	..	..	..	..	1	10	1	0	0	10
50.—WYANDOTTE (Any variety)—Cockerel	..	..	..	..	..	1	10	1	0	0	10
51.—Ditto—Pullet	..	..	..	..	..	1	10	1	0	0	10
52.—Any other Variety, Soft Feather—Cockerel	..	..	..	..	..	1	10	1	0	0	10
53.—Ditto—Pullet	..	..	..	..	..	1	10	1	0	0	10
54.—Any other Variety, Hard Feather—Cockerel	..	..	..	..	..	1	10	1	0	0	10
55.—Ditto—Pullet	..	..	..	..	..	1	10	1	0	0	10

UTILITY POULTRY.

56.—WYANDOTTE—Cock	..	..	..	..	..	1	10	1	0	0	10
57.—Ditto—Hen	..	..	..	..	..	1	10	1	0	0	10
58.—SUSSEX—Cock	..	..	..	..	..	1	10	1	0	0	10
59.—Ditto—Hen	..	..	..	..	..	1	10	1	0	0	10
60.—LEGHORN—Cock	..	..	..	..	..	1	10	1	0	0	10
61.—Ditto—Hen	..	..	..	..	..	1	10	1	0	0	10
62.—RHODE ISLAND RED—Cock	..	..	..	..	..	1	10	1	0	0	10
63.—Ditto—Hen	..	..	..	..	..	1	10	1	0	0	10
64.—Any other Variety, Light Breed—Cock	..	..	..	..	..	1	10	1	0	0	10
65.—Ditto—Hen	..	..	..	..	..	1	10	1	0	0	10
66.—Any other Variety, Heavy Breed—Cock	..	..	..	..	..	1	10	1	0	0	10
67.—Ditto—Hen	..	..	..	..	..	1	10	1	0	0	10

CHAMPION PRIZES.

Best Cock or Cockerel exhibited in any of the Classes	..	3
Best Hen or Pullet exhibited in any other Classes	..	3

DUCKS, GEESE AND TURKEYS.

68.—DRAKE or DUCK (Aylesbury)	..	..	..	1	10	1	0	0	10
69.—" " (Rouen)	..	..	..	1	10	1	0	0	10
70.—" " (Indian Runner)	..	..	..	1	10	1	0	0	10
71.—" " (Any other variety)	..	..	..	1	10	1	0	0	10
72.—GANDER or GOOSE	..	..	..	1	10	1	0	0	10
73.—TURKEY—Cock or Hen	..	..	..	1	10	1	0	0	10

SMALL HOLDINGS.

The Prizes in Classes 1, 2 and 3 are offered by the Agricultural Committee of the Dorset County Council and the Prizes in Class 4 and the Champion Prize by the Dorchester Local Committee. (For Conditions and Regulations, see Entry Form.)

Judge—E. PRITCHARD, Wood Hill Park, Wootton Bassett,
Wilts.

	1st. £	2nd. £
Class 1.—Statutory Small Holdings in area of 20 acres and over in mixed, arable and pasture cultivation, occupied by tenants of the Dorset County Council (minimum arable 4 acres) ..	10	5
Class 2.—Statutory Small Holdings of 20 acres and over cultivated as Dairy Holdings, occupied by tenants of the Dorset County Council	10	5
Class 3.—Small Holdings under 20 acres to include all classes of Holdings occupied by tenants of the Dorset County Council	10	5
Class 4.—Any Small Holding in the County of Dorset whose occupier is not a tenant of the Dorset County Council	10	5

CHAMPION PRIZE.

Best Small Holding entered in any of the above Classes 10

CONDITIONS AND REGULATIONS FOR LIVE STOCK.

GENERAL.

ENTRIES.

1. The following are the Fees payable for Stock entries made on or before March 31. After that date and up to April 7 entries (except in the Any Agricultural, Hack and Riding Pony, Driving and Jumping Classes) will only be received on payment, in each case, of double the fee named below. *Exhibitors are requested to note that no exception can be made to this.* The entry fee is not returnable to an Exhibitor who enters an Animal in a Class for which it is ineligible, or for entries that are withdrawn after the date of entry has expired.

	MEMBERS.	NON-MEMBERS.
	(See Reg. 4 below)	
Horses (Classes 1 to 11, 13 to 17 and 27 to 31) for each Entry, including Horse Box	25s.	50s.
Arabs and Ponies (Classes 18 to 26) including Box, for each Entry	10s.	10s.
Agricultural Horses, Hacks, Riding Ponies, Driving and Jumping (Classes 12 and 32 to 55) without Box	5s.	10s.
Ditto, with Box (entries close March 31)	25s.	50s.
Cattle (Classes 56 to 139)	20s.	40s.
Ditto (Small Holders' Classes 140 and 141)	5s.	10s.
Nurse Cows	40s.	40s.
Sheep (Classes 142 to 183)	17s. 6d.	35s.
Goats (Classes 186 to 194)	7s. 6d.	10s.
Pigs (Classes 195 to 232)	17s. 6d.	35s.
Ditto (Small Holders' Class 233)	5s.	10s.

For particulars as to fees in the Produce, Butter-making, Shoeing, Shearing and Poultry Classes, see Prize List and Entry forms.

2. Animals entered in the Any Agricultural, Hack, Riding Pony, Driving and Jumping Classes, and not having a box in the Yard, must be in the Yard by the time stated on the day on which they compete, and, with the consent of the Stewards may leave the Yard as soon as they have been judged. Entries in these Classes, if no Box is required, must reach the Secretary not later than 12 noon on the day previous to the competition for which the animal is entered. If a Box is required the entry must reach the Secretary on or before March 31, or at double fees as stated above, by April 7.

3. No Entry will be received unless the fee accompanies it, and (if the Exhibitor is a Member of the Society) the subscription for the year, unless previously paid, together with any arrears that may be due.

4. The privilege of entering at Members' fees is strictly limited to members of the Society, or of the Dorchester Agricultural Society, elected on or before January 31, 1928, and subscribing not less than £1 annually; or if elected after that date who has paid his subscription for 1928 and an additional £1 to the Society before the date of the closing of entries.

5. Where a Prize is offered for a *pair or pen* of Animals, single entry fees only are payable for each *pen or pair*, and only one entry form must be used.

6. Exhibitors desiring to send a nurse cow with their exhibits must give notice at the time of making their entry.

7. All Entries must be made on the printed forms to be obtained of the Secretary (F. H. Storr, 3, Pierrepont Street, Bath), and, in applying for Forms, Exhibitors are requested to state how many entries they wish to make of either Horses, Cattle, Sheep, Goats or Pigs, as a separate entry form must be filled up for each animal entered in a separate class.

8. Every Exhibitor or Competitor is requested to examine carefully the list of Prizes and Conditions, as he will be held responsible for the correctness of his Certificate of Entry. An Exhibitor omitting to give information asked for on the entry form, with regard to the age, breeder, name, colour, sire, dam, etc., of an animal, will be liable to have his entry disqualified, and, if an Exhibitor desires that his animal shall compete for any special prize offered, he must notify this on the entry form where requested to do so.

9. If an Exhibitor or Competitor fails, when called upon by the Stewards or Council, to prove the correctness of his Certificate of Entry to their satisfaction, the Entry may be disqualified and any award made to it cancelled.

10. An Exhibitor who has made, in due time, an entry of Horses, Cattle, Sheep, Goats or Pigs, in a particular class, will be permitted, up to Wednesday, April 18, to withdraw the entry of such animal, and to substitute for it the entry of another animal in the same class, on payment of the difference, if any, between the amount of the entry fee originally paid for the animal withdrawn, and the post entry fee. When, after entry, an animal dies, the Exhibitor will be permitted to substitute another entry for it, in the same class, without payment of any further fee, upon affording evidence of death and furnishing particulars of the substituted entry in time for the alteration to be made in the published catalogue.

11. In the Classes for Pigs farrowed in 1928, full particulars of the animals to be exhibited will be received up till Saturday, April 21, provided the entry has been made at the proper time.

12. An animal can be entered in as many Classes as it is eligible for on payment of an additional fee in each Class. No additional fee is, however, payable in the case of Special or Champion Prizes for exhibits already entered in any particular Class.

13. Every exhibit must be the *bona fide* property of the Exhibitor both at the time of entry and on the first day of the Exhibition. For the purposes of this Meeting, H.M. Officers' chargers will be considered as the property of the Officer in Classes 47 to 55.

SHOW YARD.

14. The Yard will be open for the reception of Suffolk Horses, Hunters (see Regulation 2 for Hack, Riding Ponies, Driving and Jumping Horses), Cattle, Sheep, Goats and Pigs, on Saturday, Sunday and Monday, May 19, 20 and 21. Suffolk Horses and Hunters will also be received from 6 to 8 o'clock on the morning of the first day of Show, but all other Stock Entries (except Shire and Agricultural Horses, Arabs and Ponies, which must be in the Yard before the time stated on Friday, May 24.) must be in the Yard by 6 p.m. on May 21. A label denoting the number of each entry will be sent by the Secretary, and must be securely affixed to the head of the Animal. The carriage of exhibits must in all cases be paid by the Exhibitor. No exhibit subject to charges will be received by Officers of the Society.

15. No animal can be removed from its place in the Yard without the special permission of the Stewards.

16. If any animal is brought into the Show Yard without having been entered for exhibition, the owner shall be liable to a fine of £2 and to the forfeiture of any prize awarded to him or her.

17. During the time the Show is open to the public no rug or cloth shall be hung up so as to conceal any animal in a horse-box or stall, except with the special permission of the Steward of the department. All sheets used for the purpose must be removed by 9 a.m. each morning, and must not be replaced until after the closing hour of the Show each day.

18. All Exhibits and all persons in charge of the same, will be subject to the Orders, Regulations, and Rules of the Society, and the Stewards shall have the power to remove from the Yard the Stock or property belonging to, and to cancel the admission ticket of, any Exhibitor who shall infringe any of the Regulations or Conditions of the Meeting, or who shall refuse to comply with any instructions given by the Stewards, without any responsibility attaching to the Stewards or the Society in consequence of such removal.

PROTESTS.

37. Any Exhibitor wishing to lodge a protest having reference to Live Stock exhibited at this Meeting must make the same in writing on a form to be obtained from the Secretary, and deposit with him the sum of £3. If, on investigation, the protest is not sustained to the satisfaction of the Stewards, the sum thus deposited, shall, at the discretion of the Council, be forfeited to the funds of the Society. All protests (except in the Hack, Riding Pony, Driving or Jumping Classes) must be delivered at the Secretary's Office in the Show Yard on the day on which the award is made, and no protest will be SUBSEQUENTLY received, unless a reason, satisfactory to the Stewards, be assigned for the delay. Any protest against an award in the Hack, Riding Pony, Driving or Jumping Classes must be made to the Steward in the ring immediately after the judging of the class to which it refers, and a deposit of £3 must, at the same time, be handed to the Steward. The Stewards will consider such protests at 11 o'clock on the following day at the Secretary's Office, at which time and place any person making a protest must attend or be represented by his authorised agent. The decision of the Stewards shall be final.

APPLYING TO CERTAIN CLASSES ONLY.**HORSES.**

38. Horses can be removed from the Yard at night on deposit by the Exhibitor of £3 at the Finance Office, which sum will be forfeited if the Horse does not return at 8 a.m. each day during the Exhibition. This Regulation does not apply to Animals not having a box in the Yard entered in the Hack, Riding Pony, Driving and Jumping Classes only.

39. Exhibitors must provide saddles for Horses in Classes 27 to 38 and 47 to 55, as they are to be ridden; and vehicles and harness for those in Classes 39 to 46 which are to be driven.

40. No Horse, unless a Foal, will be admitted into the Ring without a proper bit.

41. Except in the Moorland and Mountain Pony Classes the Prizes for Stallions foaled before 1926 will be withheld until a certificate from the owner is delivered to the Secretary that the Horse has served at least 10 Mares during the current season.

42. All Foals must be the offspring of the Mares with which they are exhibited, and the name of the sire of the Foal must be stated on the certificate of entry.

43. Mares entered as in Foal shall, except as otherwise stated hereafter, be certified to have produced a living Foal before August 1 of the year of the Show. If the required Certificate, which must be on a form obtainable from the Secretary, is not received by September 30, 1928, the prize awarded will be forfeited.

44. Horses may, at the discretion of the Stewards, be measured, and the measurement shall be taken in the shoes worn by the entry at the time of judging, and these shoes shall not be removed to allow of the entry being shown in another class.

45. In the Driving Classes for Hackneys exceeding 14 hands (except yearling colts and fillies), no shoe (nails included) may exceed 2lbs. in weight, and for Ponies not exceeding 14 hands, yearling colts and yearling fillies, no shoe (nails included) may exceed 1½lbs. in weight.

46. All Stallions and Mares (yearlings and foals excepted) to which prizes have been awarded in the breeding classes shall be examined by the Society's Veterinary Inspector, and unless pronounced free from indications of hereditary disease shall be ineligible to receive the prize. The owner of an Animal rejected under this Regulation may, upon his application in writing to the Secretary, be furnished with a copy of the Veterinary Certificate. This Regulation shall not, however, apply to any animal holding a Ministry of Agriculture Certificate for the current year, which must accompany the animal and be available for inspection by officers of the Society.

47. The following special conditions apply only to the Medal offered by the Shire Horse Society, viz. : the owner of the animal awarded the Gold Medal to have been a Member of the Bath and West and Southern Counties Society, for not less than six months previous to March 31, 1928; a Mare, five years old or upwards, must produce a Foal in the current year, or have had a Foal in the preceding year; in the case of in-foal Mares a certificate of foaling must be lodged with the Secretary of the Shire Horse Society before the medal will be dispatched. No animal to compete which has won the Shire Horse Society's Gold Medal during the current year; the Royal and London Shows being excepted; the winning animal to be entered, or eligible for entry in the Shire Horse Society's Stud Book; and a certificate that the winner is free from hereditary disease signed by the Society's Veterinary Inspector after his examination on the Show Ground, must be lodged with the Secretary of the Shire Horse Society, but Stallions licensed by the Ministry of Agriculture and Fisheries, and Stallions, Mares and Fillies officially passed at the London Show, shall be exempt from further examination when selected for Medals during the current year. A prize of £2 will also be awarded to the breeder of the animal winning the Medal, provided that he is a member of the Shire Horse Society, and that the Dam is a Mare registered in the Shire Horse Stud Book. All awards must be completed within one month of the date upon which the Medal was awarded, or they will be void. The Council reserves the right to award the prizes only to persons approved by the Shire Horse Society and subject to confirmation in the uncontrolled discretion of the Council.

48. The following special conditions apply only to the Medal offered by the Hunters' Improvement and National Light Horse Breeding Society for Hunter Brood Mares, viz. :—The Mare awarded the Medal must possess a certificate of soundness from hereditary disease, signed by the Bath and West Society's appointed Veterinary Inspector, who must be a member of the Royal College of Veterinary Surgeons, after his examination of the animal on the Show Ground.

NOTE.—All Brood Mares (except those actually holding the Society's Official Veterinary Certificate of Soundness) awarded the Society's Gold Medals in 1928 and subsequently, must comply with this condition as precedent to confirmation. No further Certificates of Exemption will be issued.

49. The following Special Conditions apply only to the Medal offered by the Hunters' Improvement and National Light Horse Breeding Society for best Mare or Gelding of any age exhibited in the Riding Classes. The Hunter awarded the medal must possess a certificate of soundness from hereditary disease, signed by the Bath and West Society's Veterinary Inspector, who must be a member of the Royal College of Veterinary Surgeons, after his examination of the animal on the Show Ground. The selected Mare, if unregistered, or the selected Gelding, if unentered, must be registered or entered within a month of the award in the Hunter Stud Book. No animal may take more than one of these Medals in 1928. The Judge, in awarding the Medal, is instructed to give preference to animals showing weight-carrying properties.

NOTE.—No awards of the above-named Society's Prizes or Medals to a Hunter named and registered in the Hunter Stud Book and subsequently entered by the owner under another name, will be recognised or confirmed unless a re-entry has been previously lodged by the owner for the Hunter Stud Book and the new name registered by the Society.

50. The following special conditions apply only to the Silver Medal offered by the Hackney Horse Society in the Driving Classes. All horses competing for the Medal must be by a *Registered Hackney Sire*. All Geldings must be registered in the Stud Book. A certificate signed by the Breeder of any unregistered mare must be forwarded to the Secretary of the Hackney Horse Society before the

Medal is despatched. Each animal must be examined by a qualified Veterinary Surgeon on the Show ground, and a certificate of soundness must be supplied. The Medal must be open to all Classes, and not confined to local competition, and the name and number of the sire, and the name and address of the breeder of each animal must appear in the Catalogue. No animal can take more than one of the Silver Harness Medals in any one year.

51. The following special conditions apply only to the Silver Medal offered by the National Pony Society for Polo Pony. The Judge is instructed to withhold the Medal unless he considers the exhibit of Polo and Riding Pony type. The owner of the winner must be a member of the National Pony Society or have lodged a form of application within 14 days of the award. No Pony may win more than one Silver Medal under this scheme in one season.

52. The Jumping Competitions will be carried out in accordance with, and judged under the rules of, the Show Jumping Association. The jumps may consist of a single hurdle, gate, double hurdle, open ditch, bank, wall, and water, at the discretion of the Judge and Stewards. Each horse competing shall have its catalogue number affixed in such a way as to be easily seen by the general public.

CATTLE.

53. All cattle must be properly secured to the satisfaction of the Officers of the Society on being brought to the gate of the Yard, or they will not be admitted. All Bulls must have a ring or clamp attached to the nose and, in the aged Classes, must be provided with a strong chain, and be led with a proper stick.

54. All cattle will be required to be paraded in the ring at least once a day at the discretion of the Stewards.

55. No Bull calved before January 1, 1926, or in the Aberdeen-Angus Classes before December 1, 1925, will be eligible to receive a Prize until certified to have served not less than six different cows (or Heifers) previous to June 1st, 1928, and to be the sire of live calves dropped in the year 1928, or in the Aberdeen-Angus Classes after December 1st, 1927. No Cow or Heifer, entered as in-milk, will be eligible to receive a Prize unless certified to have had a living Calf within the fifteen months preceding the date of the Show, or that the Calf, if dead, was born at the proper time.

56. Every Cow or Heifer in-milk shall be milked dry in the Show Yard by 7.30 p.m. on the evening preceding the day of judging, in the presence of an officer of the Society appointed for the purpose.

57. Any animal in the Cattle Classes found to be artificially coloured will be disqualified.

58. The milk yielded by Cows in the Show Yard must not be sold at the stalls, but will be purchased by the Society for the purpose of the Dairy at a price to be agreed upon, and will be paid for on delivery at the Milk Receiving Office in the Dairy.

59. The following conditions apply only to the prizes offered for Pedigree Dairy Shorthorn Milking Cows and Heifers :—The Cows and Heifers entered will be clean milked out at 6 o'clock on the evening preceding the opening of the Show to the satisfaction of the Stewards, and will be again milked in the ring on the first morning of the Show in the presence of the Judge, who shall see the Milk weighed. No animal being 4 years and 3 calendar months of age and upwards on the first day of the Show shall be eligible to compete unless it possesses the following minimum milk yields given in 315 consecutive days of one lactation period, such milk yields shall have been entered or accepted for entry in the Year Book of the Dairy

Shorthorn Association and must be supplied with the entry. The exact date of birth and the last date of calving must be given in each case, and when an animal calves between the time of entry and the date of the Show, notification must be at once sent to the Secretary:—

Age on first day of the Show.	Minimum Milk Yields if milked twice daily	Minimum Milk Yields if milked three times daily for more than 30 days after calving.
6 years and 3 calendar months and upwards	lbs. 8,000	lbs. 9,200
5 years and 3 calendar months and under 6 years and 3 calendar months	6,500	7,475
4 years and 3 calendar months and under 5 years and 3 calendar months	5,500	6,325

Animals under 4 years and 3 months old on the first day of the Show must yield up to the following standard:—

	Having calved within 2 calendar months of the 1st day of the Show.	Having calved between 2 and 3 calendar months of the 1st day of the Show.	Having calved more than 3 calendar months before the 1st day of the Show.
	lbs. of milk.	lbs. of milk.	lbs. of milk.
Heifers, over 3 years and 3 calendar months and under 4 years and 3 calendar months of age, not less than	23	20	17
Heifers, under 3 years and 3 calendar months of age, not less than (Ages to be calculated to the first day of the Show).	19	16	13

60. The following conditions apply only to the special prize offered for Pedigree Dairy Shorthorn Bulls, calved in 1927. The Bull must comply with the requirements necessary for inclusion in the Dairy Shorthorn Association's list of qualified Bulls and must possess the following further qualifications:—That the following cows in the pedigree of such bull are, or are entitled to be, registered as qualified cows in the Association's Register, viz. : 1, the dam of the bull's dam ; 2, the dam of the dam of the bull's sire ; 3, the dam of the sire of the bull's dam. No bull having taken one of these prizes to be eligible to compete again the same year, except at the R.A.S.E. Show.

61. In the Kerry and Dexter Classes clipping (except in the case of a few hairs on the top of the tail) will disqualify an animal.

62. The following conditions apply to animals entered in the Milk and Butter Test Classes:—The date of last calving must be given on the entry form and, when an animal calves between the date of entry and that of the Show, notice of such calving must be sent to the Secretary or the animal may be disqualified. Points will be allowed as follows:—

Milk Test Classes:—1 point for each 1lb. of Milk, and points for butter fat at each milking calculated at one-third of the excess percentage over 3% multiplied by the number of lbs. yield. Points are deducted on a similar basis where the Milk is below 3%. 1 point for every completed 10 days since calving, calculated to opening day of Show, deducting the first 40 days, maximum allowance 12 points.

Butter Test Classes:—1 point for each ounce of Butter. Lactation points as in Milk Test.

63. Except in Local and Dairy Classes, every animal entered for competition must be entered, or certified as eligible to be entered, in the Herd Book of its Breed, where such Herd Book exists and has been in existence for not less than seven years, and all cattle must be tattooed in accordance with the rules of their respective Breed Societies, where such rules exist. Where an animal is entered by the Exhibitor as eligible for entry in the Herd Book of its breed, proof of such eligibility must be furnished to the Secretary at the time of making the entry.

SHEEP.

64. Each pen of Ewes must be of the same Flock.

65. The following conditions apply to the Medals offered by the Southdown Sheep Society :—The sheep competing must be owned by a Member of the Southdown Sheep Society and be entered or eligible for entry in the Flock Book, and there must be at least three entries from different competitors.

66. Except in Local Classes every animal entered for competition must be entered or certified as eligible to be entered, in the Flock Book of its Breed, where such Flock Book exists and has been in existence for not less than seven years, and all Sheep must be tattooed in accordance with the rules of their respective Breed Societies where such rules exist. Where an animal is entered by the Exhibitor as eligible for entry in the Flock Book of its breed, proof of such eligibility must be furnished to the Secretary at the time of making the entry.

PIGS.

67. All Sows farrowed before May 1, 1927 shall be certified to have had a litter of live Pigs within six months preceding the first day of Exhibition, or to be in-Pig at the time of entering, so as to produce a litter of Pigs, farrowed at their proper time, before the 1st September following. In the case of in-Pig Sows the Prize will be withheld until the Exhibitor shall have furnished the Secretary with a certificate of farrowing as above. If the required Certificate, which must be on a form obtainable from the Secretary, is not received on or before the 15th September following, the prize awarded will be forfeited.

68. All Pigs exhibited with a Sow shall be her own produce, of the same litter, and not exceeding two months old at the time of the Show.

69. No Sow above 18 months old that has not produced a litter of live Pigs shall be eligible to compete in any of the Classes.

70. Any animal in the Pig Classes found to be artificially coloured, whitened or powdered, will be disqualified.

71. Should any question arise as to the age of any exhibit in the Pig Classes, the Stewards shall at the request of the Judge, have the state of their Dentition examined by a competent authority. If the state of the Dentition shall indicate that the age of any of the Pigs does not agree with the Dentition Test, the Stewards shall report the same to the Council, who shall have power to disqualify such Pig or Pigs. The following is the state of Dentition in Pigs which will be considered as indicating that they exceed the ages specified below—Six Months : Pigs having their corner permanent incisors cut will be considered as exceeding this age. Nine Months : Pigs having their permanent tusks more than half up, will be considered as exceeding this age. Twelve Months : Pigs having their central permanent incisors up, and any of the three first permanent molars cut, will be considered as exceeding this age. Fifteen Months : Pigs having their lateral temporary incisors shed, and the permanents appearing, will be considered as exceeding this age. Eighteen Months : Pigs having their lateral permanent incisors fully up will be considered as exceeding this age.

72. Except in the Local Classes, every animal entered for competition must be entered or certified as eligible to be entered in the Herd Book of its breed, where such Herd Book exists and has been existence for not less than seven years, and must conform to the rules of their respective Societies. In the Berkshire Classes the exhibits must be entered or accepted for entry in the British Berkshire Herd Book, and in the Large Black Classes the official ear-marker bearing the Herd Book number must be in the ear of all pigs entered, and the Judges will be instructed not to award prizes unless this regulation is observed, or a reasonable explanation given for the absence of the marker.

GOATS, CIDER, POULTRY, SMALL HOLDINGS, DAIRY PRODUCE,
BUTTER MAKING, MILKING, SHOEING AND SHEARING
COMPETITIONS.

For Conditions and Regulations see entry form.

ADJUDICATION OF PRIZES.

73. The Judges are instructed as follows, and entries are received subject to this :

a. Not to award any Prize or Commendation unless the entry possesses sufficient merit.

b. Not to award a Prize to any Horse or Mare in the Breeding Classes, unless it is free from unsoundness likely to be transmitted to its progeny ; or, if a Gelding, unless free from unsoundness ; in either case, an accident having temporary consequences only excepted, and in awarding the Hunters' Improvement Society's Medals to give preference to animals showing weight-carrying properties.

c. In awarding Prizes to Cattle, Sheep, and Pigs, to decide according to the relative merits of the animals for Breeding purposes, and not to take into consideration their present value to the butcher.

d. To make the milking capacity and form of udder one of the chief points in awarding Prizes to Cows and Heifers in-milk.

e. To draw the attention of the Stewards to any exhibit that has been improperly prepared for exhibition or is wrongly entered.

f. To give in a " RESERVE NUMBER " in each Class, indicating the animal or exhibit which in their opinion possesses sufficient merit for the Prize, if the animal or exhibit to which the Prize is awarded should become disqualified. Should the " Reserved Number " succeed to a prize, and be itself disqualified, the prize will be forfeited.

g. Immediately after the Judging to deliver to the Stewards their signed awards stating the numbers to which the Prizes are adjudged, and noting all disqualifications.

74. Should any question arise upon which the Judges may desire a further opinion, the Stewards shall provide them with a Referee.

PAYMENT OF PRIZES.

75. Cheques for the Prizes awarded (except where further qualification of an animal is required) will be drawn at the meeting of the Finance Committee held in July, 1928, and will then be forwarded by post to the Exhibitors to whom they have been awarded.

INTERPRETATION OF CONDITIONS.

76. The Society reserves to itself by its Council the sole and absolute right to interpret these or any other prescribed conditions and regulations, or Prize Sheets, and to arbitrarily settle and determine all matters, questions or differences in regard thereto, or otherwise arising out of or connected with or incident to the Show. Also to refuse and to cancel any entries, disqualify Exhibitors, prohibit exhibition of entries, vary or cancel awards of prizes or reserved numbers, and relax conditions, as the Society may deem expedient.

IMPLEMENTS, MACHINERY, ETC.

Entry Forms and Regulations referring to above, the entries for which close on March 13th, can be obtained of the Secretary, 3, Pierrepont Street, Bath.

By Order of the Council, F. H. STORR, *Secretary.*

Telegraphic Address—“AGRICULTURE,” BATH.

Telephone No. 610.

FINANCIAL STATEMENTS

FOR

1927

WITH ITEMS OF 1926 FOR COMPARISON.

	PAGES
SUMMARY OF CASH ACCOUNT	clxviii-clxix
ANNUAL CASH ACCOUNT	clxx-clxxix
ASSETS AND LIABILITIES ACCOUNT	clxxx
FINANCIAL RESULT OF THE SHOW	clxxxi

The Bath and West and

Dr.

SUMMARY OF THE CASH ACCOUNT
WITH COMPARATIVE

Page of accompany- ing Cash Account.	RECEIPTS.	1927. BATH.		1926. WATFORD.	
		£ s. d.	£ s. d.	£ s. d.	
	GENERAL.				
clxx	Dividends and Interest	1,055 14 6		796 8 4	
"	General			1 9 6	
"	Subscriptions	1,205 16 0		1,082 6 0	
"	Life Members	70 0 0		60 0 0	
"	Journal	52 16 3		49 1 7	
			2,384 6 9	1,989 5 5	
	SHOW.				
clxxii	Implements	3,174 19 3		2,232 9 11	
	£ s. d.				
"	Horses	1,179 2 9		890 10 0	
"	Cattle, Sheep, Goats and Pigs	1,808 15 10		1,902 18 4	
"	Catalogues, Fodder, etc.	128 0 0		129 15 5	
		3,115 18 7		2,923 3 9	
clxxiv	Poultry, Pigeons and Rabbits	106 14 0		112 12 6	
"	Shoeing	29 2 0		11 16 0	
"	Education and Handicrafts	86 5 7		3 10 0	
"	Music	18 12 8		4 4 8	
"	Small Holdings and Allotments	119 10 0			
clxxvi	Cheese and Butter	124 7 4		53 2 9	
"	Working Dairy	113 2 5		108 8 2	
"	Cider	19 5 6		5 14 6	
"	Admissions	5,542 1 0		2,452 12 6	
clxxviii	Unapportionable :—				
	Contract Premiums and Cloak Rooms 948 0 11			857 12 4	
	Sales, Fittings, etc. 8 6 13 8			308 18 2	
"	Bath Local Committee Balance .. 114 2 3				
		1,868 16 10		1,166 10 6	
"	Subscriptions from Towns	800 0 0		800 0 0	
			15,118 15 2	9,874 5 3	
			17,503 1 11	11,863 10 8	
"	Sale of Stock		1,123 13 3	3,473 7 10	
"	Balance in Bank, January 1st			1,082 0 10	
"	Balance due to Bank, December 31st		247 6 1	857 15	
			18,874 1 3	17,276 14 10	

Southern Counties Society.

FOR THE YEAR ENDING DEC. 31st, 1927.

CR.

STATEMENT FOR 1926.

Page of accompany- ing Cash Account.	PAYMENTS.	1927. BATH.		1926. WATFORD.	
		£ s. d.	£ s. d.	£ s. d.	
	GENERAL.				
clxxi	Salaries	1,335	13 11	1,338	1 0
"	Printing, Postage, Stationery, etc.	898	3 3	544	7 11
"	Journal	403	1 11	466	18 5
			2,636 19 1	2,349	7 4
	SHOW.				
clxxiii	Implements	1,199	12 0	850	2 5
"	Horses £1,925 7 10			2,047	13 5
"	Cattle, Sheep, Goats and Pigs 4,309 5 2			4,376	12 7
"	Fodder, etc. 950 16 9			1,019	15 0
		7,185	9 9	7,444	1 0
clxxv	Poultry, Pigeons and Rabbits	509	3 5	538	12 5
"	Shoeing	158	7 11	148	1 8
"	Education and Handicrafts	298	15 1	250	13 3
"	Forestry	202	16 6	96	10 0
"	Music	177	7 2	177	18 2
"	Small Holdings and Allotments	101	19 3		
clxxvii	Horticulture	330	12 2	208	5 0
"	Cheese and Butter	268	17 7	206	9 9
"	Working Dairy	643	14 3	602	15 4
"	Cider	155	12 2	125	14 3
clxxix	Public Announcements	726	3 5	653	5 2
"	Unapportionable :—				
	Erection of Offices, etc. £1,860 1 9			2,231	4 9
	Carriage of Plant 141 14 4			212	1 9
	Stand Fittings 550 9 2			130	9 1
	Police			170	11 8
	Miscellaneous 724 14 2			749	4 8
		3,276	19 5	3,493	11 11
			15,235 10 1	14,796	0 4
"	EXPERIMENTS.		143 16 7	131	7 2
			18,016 5 9	17,276	14 10
	Balance due to Bank, January 1st		857 15 6		
		£ 18,874	1 3	17,276	14 10

January 23rd, 1928.

Audited and found correct.

F. CLIFFORD GOODMAN, F.C.A.,
Auditor.

Passed by Council,

January 31st, 1928.

F. H. STORR,
Secretary.

The Bath and West and

Dr.

CASH ACCOUNT FOR THE YEAR ENDING DEC. 31st,

RECEIPTS.	1927. BATH.		1926. WATFORD.
	£	s. d.	£ s. d.
DIVIDENDS AND INTEREST.			
War Loan Stock			86 4 1
South Australian Stock	33	3 2	33 3 12
New Zealand Stock	43	18 0	43 18 0
India Stock	180	18 8	180 18 8
New South Wales 4 per cent. Stock	129	17 0	129 17 0
Canadian Pacific Railway Stock	48	0 0	48 0 0
Conversion 3½ per cent. Insc. Stock	168	0 0	168 0 0
New South Wales 5 per cent. Stock	100	0 0	100 0 0
Income Tax returned	351	17 8	
Interest on Current Account			6 7 5
		1,055 14 6	796 8 4
GENERAL			1 9 6
SUBSCRIPTIONS FROM MEMBERS.			
Arrears	30	15 0	34 3 0
Governors	152	1 0	142 14 0
Subscribers of £1 and upwards	1,016	10 0	900 9 0
„ „ 10/-	6	10 0	5 0 0
		1,205 16 0	1,082 6 0
LIFE COMPOSITIONS		70 0 0	60 0 0
JOURNAL.			
Sales	5	4 0	5 5 7
Advertisements	47	12 3	43 16 0
		52 16 3	49 1 7
Carried forward		2,384 6 9	

Southern Counties Society.

1927, WITH COMPARATIVE STATEMENT FOR 1926.

CR.

PAYMENTS.	1927. BATH.			1926. WATFORD.		
	£	s.	d.	£	s.	d.
SALARIES.						
Secretary and Editor	650	0	0	650	0	0
Assistant Secretary	450	0	0	450	0	0
Office Staff	175	13	11	178	1	0
Auditor	30	0	0	30	0	0
Consulting Chemist	30	0	0	30	0	0
				1,335	13	11
				1,338	1	0
MISCELLANEOUS.						
Printing, Stationery and Finance Books ..	101	0	11	87	13	10
Postages, Telegrams, Insurance, Cheque and Receipt Stamps	88	3	7	82	4	10
Ground Rent and Rates	29	4	3	28	18	6
Property Tax	8	6	0	8	6	0
Travelling Expenses	27	17	7	46	11	5
Carriage of Goods	3	0	0	19	9	9
Directories and Reference Books	1	2	5	7	1	0
Subscriptions	10	10	0	13	6	0
Repairs and Fittings	14	8	11	11	1	1
Hire of Council Rooms	2	4	0	2	6	0
Fuel and Light	18	2	7	8	15	6
Ditto (1926)	8	11	0			
Telephone	14	0	7	14	16	0
Council Grants and Allowance to Widow of late Secretary	103	7	6	102	7	10
Finance Committee's Expenses	1	17	3	8	16	2
Bank Charges	66	18	4	49	3	9
Somerset Agricultural Association deficiency ..	309	8	4	53	10	3
Income Tax Appeal						
				808	3	3
				544	7	11
JOURNAL.						
Printing and Stationery	313	15	1	340	14	0
Plans and Blocks	12	5	4	25	3	6
Distribution	32	10	6	31	18	5
Postages, Stationery, Reference Books, etc. ..	9	0	0	8	0	0
Authors	35	11	0	61	2	6
				403	1	11
				406	18	5
Carried forward				2,636	19	1

Dr.

CASH ACCOUNT—*continued.*

RECEIPTS.		1927. BATH.		1926. WATFORD.
		£ s. d.	£ s. d.	£ s. d.
Brought forward	.. ..		2,384 6 9	
IMPLEMENTS.				
Fees for Space :—				
Machinery in Motion Shedding	.. ..	1,010 10 0		816 0 0
Ordinary	.. ..	236 0 0		109 0 0
Miscellaneous	.. ..	127 10 0		124 0 0
Special	.. ..	892 15 0		608 15 0
Uncovered Ground	.. ..	736 4 9		441 19 11
Catalogue Fees	.. ..	74 14 6		56 4 6
Entry Fees	.. ..	74 10 0		65 10 0
Additional Assistants' Tickets and Fine	.. ..	22 15 0		11 0 6
			3,174 19 3	2,232 9 11
HORSES, CATTLE, SHEEP, GOATS and PIGS.				
Horses : Entry Fees and Fines	.. £335 5 0			359 11 0
Grand Stand Admissions	.. 725 7 0			374 6 0
Special Prizes	.. 118 10 9			156 13 0
		1179 2 9		890 10 0
Cattle, Sheep, Goats and Pigs.				
Entry Fees	.. .. £1,095 17 6			1,192 10 0
Fines	.. .. 15 10 0			24 10 0
Special Prizes	.. .. 697 8 4			685 18 4
		1,808 15 10		1,902 18 4
Catalogues, Manure and Fodder	.. £115 8 0			117 3 5
Advertisement in Prize List	.. 12 12 0			12 12 0
		128 0 0		129 15 5
			3,115 18 7	2,923 3 9
Carried forward	..		8,675 4 7	

CASH ACCOUNT—continued.

CR.

PAYMENTS.	1927. BATH.		1926. WATFORD.	
	£	s. d.	£	s. d.
Brought forward			2,636	19 1
IMPLEMENTS.				
Shedding	1 048	5 3	679	2 10
Stewards and Assistants	94	3 4	124	1 1
Printing, Stationery, etc.	57	3 5	46	18 6
			1,199	12 0
HORSES, CATTLE, SHEEP, GOATS and PIGS.				
Horses :—Prizes	£1,163	0 3	1,164	2 0
Shedding & Grand Stand	629	16 11	705	9 1
Stewards and Assistants	72	9 6	118	18 11
Judges	60	1 2	59	3 5
	1,925	7 10	2,047	13 5
Cattle, Sheep, Goats and Pigs.				
Cattle Prizes	£1,486	9 3	1,456	0 0
Ditto (1926)	12	0 0		
Sheep	629	0 0	521	0 0
Goats	18	0 0	37	5 0
Pigs	555	0 0	587	0 0
Shedding and Canvas	1,291	16 7	1,462	2 10
Stewards and Assistants	110	0 0	105	12 10
Judges	179	17 4	189	9 5
Fees returned, etc.	7	2 0	18	2 6
	4,309	5 2	4,376	12 7
Buildings	£420	4 0	444	8 9
Fodder and Insurance	302	14 4	335	0 0
Forage Steward and Assistants	20	14 8	25	14 0
Veterinary Inspectors	21	8 3	40	19 7
Rosettes	14	0 0	14	14 0
Printing, Stationery, etc.	149	9 11	139	14 8
Refreshments for Judges	22	5 7	10	4 0
	950	16 9	1,019	15 0
			7,185	9 9
			7,444	1 0
Carried forward			11,022	0 10

Dr.

CASH ACCOUNT—continued.

	RECEIPTS.	1927. BATH.		1926 WATFORD.	
		£ s. d.	£ s. d.	£ s. d.	
	Brought forward		8 6 7 5	4	7
	POULTRY, PIGEONS and RABBITS.				
	Entry Fees	99	6	0	87 6 6
	Commission on Sales	0	8	0	1 6 0
	Special Prizes	7	0	0	24 0 0
			106	14	0
				112	12 6
	SHOEING.				
	Entry Fees	14	2	0	8 6 0
	Special Prizes	15	0	0	3 10 0
			29	2	0
				11	16 0
	EDUCATION and HANDICRAFTS.				
	Fees for Space, Handicrafts	59	10	0	
	Admission to Stand	24	5	7	
	Part Cost of Tea for Children	2	10	0	
	Entry Fees, Rural Education				3 10 0
			86	5	7
	MUSIC.				
	Chairs		18	12	8
				4	4 8
	SMALL HOLDINGS AND ALLOTMENTS				
	Entry Fees	8	11	0	
	Prizes	110	19	0	
			119	10	0
	Carried forward		9,035	8	10

CASH ACCOUNT—continued.

Cr.

PAYMENTS.			1927. BATH.		1926. WATFORD.	
			£	s. d.	£	s. d.
Brought forward	..	..			11,022	0 10
POULTRY, PIGEONS and RABBITS						
Shed, Staging, Pens and Runs	..	..	177	9 7	220	11 9
Steward and Assistants	..	..	32	19 2	41	17 0
Judges	..	..	18	6 2	16	1 2
Prizes	..	..	249	8 0	229	13 0
Printing, Stationery, Carriage, etc.	..	..	31	0 6	30	9 6
					509	3 5
SHOEING.						
Prizes	..	..	45	0 0	25	0 0
Judges	..	..	9	2 0	10	16 0
Anvils, Forges, Coals, Horses, Printing, etc.	..	..	8	8 1	6	6 5
Shedding	..	..	76	16 0	83	8 3
Steward and Assistants	..	..	4	1 10	7	11 0
Exhibition of Models	..	..	15	0 0	15	0 0
					158	7 11
EDUCATION and HANDICRAFTS.						
Pavilions and Staging	..	..	247	15 4	226	8 10
Steward and Assistants	..	..	21	6 10	19	12 9
Printing, Postage, Carriage, etc.	..	..	11	9 11	4	11 8
Children's Tea	..	..	18	3 0		
					298	15 1
FORESTRY.						
Pavilion and Staging	..	..	115	8 0	80	14 2
Steward, Judge and Assistants	..	..	11	7 10	9	18 4
Printing, Postage, etc.	..	..	9	0 11	5	6 0
Prizes, Grants and Demonstrator	..	..	30	18 6	0	11 6
Ditto (1926)	..	..	36	1 3		
					202	16 6
MUSIC.						
Band Stand, Chairs, etc.	..	..	55	1 4	31	0 5
Band and Expenses	..	..	106	0 0	128	15 0
Steward and Assistants	..	..	16	5 10	18	2 9
					177	7 2
SMALL HOLDINGS and ALLOTMENTS.						
Prizes	..	..	96	0 0		
Judges	..	..	3	3 0		
Printing and Stationery	..	..	2	16 3		
					101	19 3
Carried forward	..	..			12,470	10 2

CASH ACCOUNT--Continued.

CR.

PAYMENTS.			1927. BATH.			1926. WATFORD.		
			£	s.	d.	£	s.	d.
Brought forward	..	..			12,470	10	2	
HORTICULTURE.								
Gratuities to Exhibitors	..	..	133	10	0		70	0 0
Pavilion and Staging	..	..	172	10	0		116	8 4
Steward and Assistant, Printing, etc.	..	..	24	12	2		21	16 8
					330	12	2	208 5 0
CHEESE and BUTTER.								
Judges	..	..	12	13	8		6	12 0
Prizes	..	..	142	0	0		104	0 0
Stewards and Assistants	..	..	15	19	8		30	2 0
Pavilion and Staging	..	..	91	18	7		60	7 3
Printing, Stationery, Carriage, etc.	..	..	6	5	8		5	8 6
					268	17	7	206 9 9
WORKING DAIRY.								
Stewards and Assistants	..	..	72	18	10		83	2 7
Judges and Demonstrators	..	..	33	8	4		43	14 10
Buildings	..	..	239	5	0		2,6	9 11
Clean Milk Demonstrations	..	..	34	17	10		55	5 1
Printing, Stationery, Postage, etc.	..	..	5	0	0		6	3 4
Utensils, Carriage, etc.	..	..	123	13	2		91	9 2
Prizes	..	..	53	9	6		48	19 0
Coal, Salt, Ice, etc.	..	..	13	14	9		8	12 11
Milk and Cream	..	..	35	15	0		25	4 0
Purchase of Plant	..	..	31	11	10			
Cows for Milking Competitions	..	..					1	16 0
Fees returned	..	..					1	18 6
					643	14	3	602 15 4
CIDER.								
Pavilion and Staging	..	..	32	10	8		34	6 6
Steward and Assistants	..	..	21	14	9		21	2 8
Judge	..	..	3	6	0		5	15 0
Prizes	..	..	60	0	0		48	0 0
Analyses, Carriage, Printing, etc.	..	..	38	0	9		16	10 1
					155	12	2	125 14 3
Carried forward	..	..			13,869	6	4	

CASH ACCOUNT—*continued.*

Cr.

PAYMENTS.	1927. BATH.		1926. WATFORD.	
	£	s. d.	£	s. d.
Brought forward			13,869	6 4
PUBLIC ANNOUNCEMENTS.				
Advertising	301	12 6	233	14 6
Billposting	273	3 4	321	2 0
Railway Placards	88	8 0	43	4 6
Printing	62	19 7	55	4 2
			726	3 5
SHOW (Unapportionable).			653	5 2
Official Buildings, etc.	1,610	6 9	1,863	15 1
Hoarding	249	15 0	367	9 8
Carriage of Plant	141	14 4	212	1 9
Stand Fittings	550	9 2	130	9 1
Insurance	61	1 9	50	6 6
Furnishing Official Buildings, etc.	52	10 0	42	18 3
Mess Room, Allotment Expenses, etc.	48	3 7	12	3 4
Ditto (1926)	18	10 0		
Gatekeepers, Yardmen and Messengers	201	5 3	207	9 11
Stewards of Finance and Treasurer	26	7 6	33	16 0
Inspector of Cash and Assistant	51	15 0	49	0 6
Secretaries' Expenses and Finance and Treasurer's Clerks	17	2 0	42	6 0
Police, Badges, etc.	7	16 0	170	11 8
Catalogues for Press and Officials	19	9 0	20	1 10
Purchase of Plant	52	16 4	153	3 6
Printing, Stationery and Commission on Season Tickets	84	8 9	90	10 9
Telegraph and Telephone	43	16 10	39	7 5
Council Grants, &c.	39	12 2	7	14 8
			3,276	19 5
EXPERIMENTS.			3,493	11 11
Cider—Grant to Cider Institute	100	0 0	100	0 0
Rough Pastures and Limestone.— Travelling Expenses, Carriage and Printing	43	16 7	31	7 2
			143	16 7
			18,016	5 9
			17,276	14 10
Balance due to Bank, January 1st			857	15 6
			£18,874	1 3
			17,276	14 10

JANUARY 23RD, 1928.

I hereby certify that I have examined the foregoing accounts for the year ending December 31st, 1927, compared the payments entered with the vouchers, and found them all in order and correct.

F. CLIFFORD GOODMAN, F.C.A.
Auditor.

Passed by Council,
January 31st, 1928.

F. H. STORR, Secretary.

ASSETS AND LIABILITIES ACCOUNT TO DECEMBER 31st, 1927, WITH COMPARISON FOR 1926.

[illegible]

January 23rd, 1928.

I hereby certify that I have audited the above Balance Sheet, and that, in my opinion, it is correct, and shows the true position of the Society's affairs according to the Books. The securities for the Society's Investments have been produced to me, and I have found them in order. The various Stocks have been valued by the Society's Bankers.

F. CLIFFORD GOODMAN, F.C.A., Auditor.

Passed by Council,
January 31st, 1928.

F. H. STORR, Secretary.

Bath and West and Southern Counties Society.

STATEMENT SHOWING FINANCIAL RESULT OF THE BATH (1927) SHOW.

Printed Financial State- ments.		£ s. d.	£ s. d.	£ s. d.
Page				
clxix	Show Payments as per			
	Summary	15,235 10 1		
clxxx	Show Accounts unpaid ..	30 0 0		
clxxiii		15,265 10 1		
clxxv	Less 1926 A/cs. paid in 1927..	66 11 3	15,198 18 10	
clxx x }				
clxxvii	Less Dairy and Show Plant			
clxxix	purchased	84 8 2		
	Less 10% for Depreciation ..	8 8 10	75 19 4	
				15,122 19 6
clxviii	Show Receipts as per Summary			15,118 15 2
	Loss on 1927 Show			£4 4 4

(clxxxii)

BATH AND WEST AND SOUTHERN COUNTIES SOCIETY,

FOR THE

Encouragement of Agriculture, Arts, Manufactures and Commerce.

LIST OF MEMBERS, 1928.

PATRON.

HIS MOST GRACIOUS MAJESTY THE KING.

PRESIDENT.

LIEUT.-COL. THE RIGHT HON. LORD WYNFORD, D.S.O.

TRUSTEES.

THE MOST HON. THE MARQUIS OF BATH, K.G.

SIR J. SHELLEY, BART.

H. B. NAPIER, Esq.

Names thus () distinguished are Governors.*

Names thus (†) distinguished are Life Members.

*** Members are particularly requested to make the Secretary acquainted with any errors in the names or residences.*

Name.	Residence	Sub- scriptions		
		£	s.	d.
*†His Most Gracious Majesty the King	Windsor Castle .. .. .	..	..	..
*†Wales, H.R.H. Prince of K.G.	St. James' Palace, London .. .. .	..	..	..
*†York, H.R.H. Duke of K.G.	St. James' Palace, London .. .. .	..	..	..
Ackers, Chas. P.	Huntley Manor, Gloucester	1	0	0
Ackers, Mrs.	Huntley Manor, Gloucester	1	0	0
Acland, Alfred Dyke .. .. .	.. .. .	1	0	0
Acland, right Hon. Sir F. Dyke, Bart.	Killerton, Exeter	1	0	0
Adams, E. C.	The Cedars, Trowbridge, Wilts	1	0	0
Aldridge, D.	Sketchley Hall Farm, nr. Hineckley, Leicester	1	0	0
*Alexander, G. C.	Manor House, Winterbourne Stoke, Salisbury	2	2	0
Alexander, Hubert	5, High Street, Cardiff	1	1	0
Alfa Laval Co. (Ld.)	Alfa Laval House, 34, Grosvenor Road, London, S.W.1.	1	0	0
Allen, A.	Chesterblade, Shepton Mallet	1	0	0
Allen & Foster	Corn and Seed Merchants, Shepton Mallet	1	1	0

Name	Residence	Sub- scriptions		
		£	s.	d.
Allen, J. R.	Cheese Merchant, Shepton Mallet	1	1	0
Allen, W. T.	Bradley House, West Pennard, Bridgwater	1	0	0
Allison, F.	Newbiggin, Penrith, Cumberland..	1	0	0
Anglo-Continental Guano Works	Dock House, Billiter Street, E.C.3.	1	0	0
*Ansdell, C. W.	Lackford Abbas, Stockbridge, Hants.	2	0	0
Anstruther, C. J.	Woolston Grange, Williton, Somerset	1	1	0
*†Aplin, R. M. S.	12, Sydney Place, Bath . . . . .	..	..	..
†Aplin, Mrs. R. M. S.	12, Sydney Place, Bath . . . . .	..	..	..
Argent, W. A.	Ghyll Manor, Ruspur, Sussex	1	0	0
Armitage, G.	Conkwell Grange, Limpley Stoke, near Bath.. . . .	1	0	0
Armitage, T. C.	Dean Court, Taunton	1	1	0
Armitage, Mrs.	Dean Court, Taunton	1	1	0
†Ashcomb, Lord	Denbies, Dorking . . . . .	..	..	..
†Ashcroft, W.	13, The Waldrons, Croydon . . . . .	..	..	..
Asher, S. G.	Ascot Place, Ascot	1	0	0
Associated Manufacturers Co.	46-48, Wharfedale Road, Kings Cross, London, N.1	1	0	0
*Astor, Viscount	Cliveden, Taplow, Bucks	2	0	0
Attle, Miss E. M.	Dormeston, Inkberrow, Wores.	1	0	0
Austin, E. A.	Baltonsborough, Glastonbury	1	1	0
†Avebury, Lord	High Elms, Hayes, Kent . . . . .	..	..	..
†Aveling, Thomas L.	Rochester . . . . .	..	..	..
Avon Manure Company (Ld.)	St. Philip's Marsh, Bristol	1	0	0
Awdry, E. M.	Chippenharn, Wilts	1	1	0
Ayre, W.	Hurcot, Somerton, Somerset	1	1	0
Badoock, S. H.	Holmwood, Westbury-on-Trym, Bristol	1	1	0
Bailey, W. T. & A. G.	Great House Farm, Hemel Hemp- stead, Herts.	1	0	0
Bainbridge, Mrs. R. C.	Elfordleigh, Plympton, Devon	1	0	0
Baker, H.	The Holmes, Stoke Bishop, Bristol	1	0	0
†Baker, Hiatt C.	Oaklands, Almondsbury . . . . .	..	..	..
Barnfords (Ld.)	Uttoxeter	1	0	0
Barber, J. Guttridge	Fylde House, Oxford Road, Exeter	1	0	0
Barham, G. T.	Sudbury Park, Wembley, Middlesex	1	1	0
*Barker-Hahlo, H. . . . .	.. . . .	2	0	0
Barkla, Stinchcomb & Cole (Ld.)	69, Queen Square, Bristol	1	0	0
Barnes, Major-Gen. Sir R. W. R., K.C.B., D.S.O.	Oakhay, Stoke Canon, near Exeter	1	0	0
Barnett, D. P.	Walterston, Llancarvan, Cowbridge	1	0	0
†Barrett, A. G.	Eastbrook, near Taunton . . . . .	..	..	..
Barrett, D.	Eastbrook, Trull, Taunton	1	1	0
Barrett, Col. W.	Moredon, North Curry, Taunton	1	0	0
Barry, Lieut.-Col. A. P.	Baltonsborough, Glastonbury	1	0	0
Barstow, J. J. J.	The Lodge, Weston-super-Mare	1	1	0

Name	Residence	Sub- scriptions		
		£	s.	d.
Basic Slag and Phosphate Co. (Ld.)	69, Queen Victoria Street, London, E.C.4.	1	1	0
Bassett, A. F. .. .. .	.. .. .	1	0	0
Bastard, H. E.	Tinten Manor, St. Tudy, S.O., Cornwall	1	0	0
*†Bath, Marquis of, K.G.	Longleat, Warminster .. .. .	..	..	..
Bath Gas Company	Bath	1	0	0
Bathurst, Major Sir F. Hervey, Bart., D.S.O.	Somborne Park, King's Somborne, Hants	1	1	0
Bathurst, Lady K. Hervey	Somborne Park, King's Somborne, Hants	1	1	0
Batstone, E. J.	54, High Street, Wells, Somerset	1	1	0
*†Batten, Major H. C., D.S.O.	Aldon, Yeovil .. .. .	..	..	..
Batten-Pooll, R. H.	Road Manor, Bath	1	0	0
†Baxendale, J. Noel	Froxfield Green, Petersfield .. .. .	..	..	..
†Beadle, F.	Stowey Farm, Timberscombe, Taunton .. .. .	..	..	..
Beak, J. D.	Maiden Bradley, Bath	1	0	0
Beacroft, Mrs.	Wellington Hotel, Wellington College Station, Berks	1	0	0
Beatty, A. Chester	Calehill Park, Little Chart, Kent	1	0	0
Beauchamp, D. C.	Upton House, Upton Cheyney	1	0	0
Beauchamp, Sir F. B., Bart.	Woodborough House, Peasedown St. John, Bath	1	1	0
Beauchamp, J. F. H.	Woodborough House, Peasedown St. John, Bath	1	0	0
Beauchamp, L. B.	Norton Hall, near Bath	1	0	0
*Beaufort, Duke of	The Cottage, Badminton, Glos.	2	0	0
Bell, Major W.	Cove House, Ashton Keynes, Crick- lade, Wilts	1	1	0
Benett-Stanford, Capt. J.	Hatch House, Tisbury	1	0	0
Bennett, Brothers	Journal Office, Salisbury	1	1	0
Bennett, H. E.	Walmer House, Borden, Tonbridge, Kent	1	1	0
Bennett, R. A.	Thornbury, Glos.	1	0	0
Bennett, R. E.	Cheselbourne, Dorchester, Dorset	1	0	0
Benyon, H. A.	Upton Court, near Reading	1	1	0
*Benyon, J. Herbert	Englefield House, Reading	5	0	0
Berry, Grosvenor	Mount Bures, Bures, Suffolk	1	0	0
Berryman, F. H.	Field House, Shepton Mallet	1	1	0
Bessant, W.	Skinnars Farm, Wooland, Bland- ford, Dorset	1	0	0
†Best, Mrs. W.	Vivod, Llangollen .. .. .	..	..	..
†Best, F. C.	Vivod, Llangollen .. .. .	..	..	..
†Best, H. G.	Vivod, Llangollen .. .. .	..	..	..
†Best, Capt. W.	Vivod, Llangollen, N. Wales .. .. .	..	..	..
Best, Hon. J. W., O.B.E.	Hincknowle, Melplash, Dorset	1	0	0
Betts, J. R.	Greenhill Farm, Otham, Maidstone	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Beynon, Sir J. W., Bart., C.B.E.	Merthyr House, Cardiff	1	1	0
Bide, S. and Sons	Pedigree Pig Farm, Farnham, Surrey	1	0	0
Bindley, W. A.	36, Augustus Road, Edgbaston . .	1	0	0
Birdwood, Lt.-Col. G. C. . .	16, Gloucester Road, Redhill . .	1	0	0
Birmingham, C.	Nutscote, The Parks, Minehead . .	0	10	0
Bisdee, T. G.	Hutton Court, Weston-super-Mare .	1	0	0
† Blackburn, H. P.	Donhead Hall, Salisbury . . . .	..	..	..
† Blackstone, G. M.	Blackstone & Co., Ltd., Stamford..	..	..	..
Blair, D. R.	Furnwalls, Amersham, Bucks . .	1	0	0
Blake, Col. M. Lock	Bridge, S. Petherton	1	0	0
Bland, V. S.	The Warren, Aldbourne, Wilts . .	1	0	0
Blathwayt, R. W.	Dyrham Park, Chippenham	1	1	0
Blathwayt, Rev. W. E. . . .	Dyrham Rectory, Chippenham . .	1	0	0
Blay, G.	New Malden, London, S.W. . . .	1	0	0
† Bledisloe, Lord, K.B.E. . .	Lydney Park, Gloucester . . . .	..	..	..
Blinks, A.	Alma House, Hawkhurst, Kent . .	1	1	0
Blinman, F. R.	Auctioneer, Farringdon Gurney, Bristol	1	0	0
* Blythswood, Lord	Penrice Castle, Reynoldston, S.O., Glamorgan	2	0	0
Blythswood, Lady	Penrice Castle, Reynoldston, S.O., Glamorgan	1	0	0
Board, W. R.	Great Frampton, Llantwit Major, Cardiff	1	0	0
*† Boles, Lt.-Col. Sir Dennis F., Bart., C.B.E., D.L. . .	Watts House, Taunton . . . . .	..	..	..
* Boles, G. F.	17th Lancers, Alival Barracks, Tidworth	2	0	0
Bolitho, R. F.	Ponsandane, Penzance	1	1	0
Bond, E. (W. Evans & Co.) . .	Hele, Cullompton	1	1	0
Boscawen, Rev. A. T. . . .	Ludgvan Rectory, Long Rock, R.S.O., Cornwall	1	0	0
† Bowerman, Alfred	Sydney Villa, Broadclyst, Exeter .	..	..	..
Bowring, R. A.	Rockhill, Keynsham	1	0	0
Box, Miss D.	The Manor, Aston Magna, Moreton- in-Marsh	1	0	0
Braby, F. & Co. (Ltd.) . . .	Ashton Gate Works, Bristol . . .	1	0	0
Bradford, Thomas & Co. . .	Salford, Manchester	1	0	0
* Braithwaite, T. S.	Durley Hill, Keynsham, Somerset .	2	0	0
Brassey, Col. E., M.V.O. . .	Dauntsey Park, Chippenham . . .	1	0	0
† Brassey, Capt. R. B. . . .	.. . . .	..	..	..
Brent, C.	Clampit, Callington, Cornwall . .	1	0	0
Brenton, W. (Ltd.)	St. Germans, Cornwall	1	0	0
Bridges, J. W.	Croydon Hall, Washford, Somerset .	1	0	0
Briggs, Mrs. H.	The Grange, North Stoke, Walling- ford, Berks.	1	1	0
<i>Bristol Times and Mirror,</i> Proprietors of	Bristol	1	0	0
Brittan, Col. R., D.S.O. . .	Failand Hill, Failand, Bristol . .	1	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
Britten, Forester	Kenswick Manor, Worcester ..	1	0	0
†Broadmead, H.	Enmore Castle, Bridgwater ..	..	..	..
†Brocklehurst, H. D. ..	Sudeley Castle, Winchcombe ..	..	..	..
Brockman, F. D.	Broxmoor, Herts	1	0	0
Bromwich, Mrs. M. A. ..	Kenfield Hall, near Canterbury ..	1	0	0
Brooksbank, H. L.	Sandrook, Tickhill, Yorks ..	1	0	0
Brown, F. E.	1,403, Neath Road, Swansea ..	1	0	0
Brown, J.	Tellesford House, Clifton Down, Bristol	1	0	0
Browne, Capt. A. S. C. ..	Gorseley Leaze, Malmesbury ..	1	0	0
Browning, T.	Nash End Farm, Eastington, Stonehouse, Glos.	0	10	0
Browning, W.	Nash End Farm, Eastington, Stone- house, Glos.	0	10	0
Bruce, Capt. W., C.B.E. ..	Haseley Manor, Wallingford ..	1	0	0
†Bruford, E. J.	Nerrols, Taunton .. ..	..	..	..
Bruford, R.	Nerrols, Taunton	1	0	0
Brymer, W. J.	West Down Lodge, Winchester ..	1	0	0
Buchanan, W. G.	Manor House Farm, Abergavenny	1	0	0
Buck, D.	White House, Little Mill, Ponty- pool	1	0	0
Buckingham, Rev. C. L. ..	Bickleigh Rectory, near Tiverton..	1	1	0
†Buckingham, Rev. Preb. ..	Leigh House, Manston Terrace, Exeter, Devon .. ..	..	..	..
Buckingham, Capt. F. R. ..	Dishcombe, South Tawton, near Okehampton	1	0	0
Budd, Felix S.	Clarendon House, Stow Park, New- port, Mon.	1	0	0
Budd, G. C.	The Paddock, Shepton Mallet ..	1	0	0
Buller, Capt. M. L.	Downes, Crediton	1	0	0
Bullows, Miss H. M.	Metchley, Barlows Road, Edgbaston, Birmingham	1	1	0
Bullows, Miss M. A.	Metchley, Barlows Road, Edgbas- ton, Birmingham	1	1	0
Buncombe, E. H.	Ford House, Wellington, Somerset	1	1	0
Burge, T.	Yatton, Bristol	1	0	0
Burnard & Algar	Plymouth	1	0	0
Burrell, C. and Sons	St. Nicholas Works, Thetford ..	1	0	0
Busfield, Miss L.	Raysfield, Chipping Sodbury ..	1	0	0
*†Bush, C. de Lisle	Eastington Park, Stonehouse, Glos.	..	..	..
†Bush, H. G.	The Grove, Alveston, Glos. ...	..	..	..
Bush, Mrs. L. E.	St. Mary's, Atlantic Road, South, Weston-super-Mare	1	1	0
Busk, Mrs.	Wraxall Manor, Cattistock, Dorset	1	0	0
*Bute, The Marquis of ..	The Castle, Cardiff	2	0	0
Butler, E. M.	Combe Grove, Monkton Combe, Bath	1	0	0
Butler, Mrs. T.	Elms Court, Albert Road, near Cheltenham	1	0	0
Butler, W.	Gatecombe Farm, Flax Bourton, Bristol	1	0	0
Butt, S. C.	Oxendean Farm, Warminster ..	1	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
†Buxton, Major Gerard	.. Tockenham Manor, Wootton Bassett, Wilts			
Cable, Lord	.. .. Lindridge, near Teignmouth ..	1	1	0
Caesar, H. and J.	.. .. Knutsford, Cheshire ..	1	0	0
Calley, Miss	.. .. Burderop Park, Swindon ..	1	0	0
†Calmady-Hamlyn, Miss	.. .. Pearroc Vean, Buckfast, S. Devon ..			
Calvert, Mrs. C. M. L.	.. .. Banwell Castle, Banwell, Somerset	1	0	0
†Campbell, C. H.	.. .. Park House, Over Stowey, Bridgewater			
Campbell, J.	.. .. 31, St. Albans Road, Swansea ..	1	0	0
Campbell, Mrs. M. J.	.. .. Park House, Over Stowey, Bridgewater	1	1	0
Candy, E. C.	.. .. Moores Farm, Holcombe, near Bath	1	0	0
Candy, T. C.	.. .. Woolcombe, Cattistock, Dorset ..	1	0	0
Cann, J. H.	.. .. Gothelney Manor, Bridgewater ..	1	1	0
Capel, A.	.. .. Balland Lodge, Wiveliscombe, Som.	1	1	0
Capper, Lt.-Col. A. S., D.S.O.	.. .. Langley House, Wiveliscombe, Somerset	1	1	0
Carew, C., M.P.	.. .. Collipriest, Tiverton ..	1	0	0
Carrington, H. B.	.. .. Blacklands, Crowhurst, Sussex ..	1	0	0
†Carter, E.	.. .. East Upton, Ryde, Isle of Wight ..			
Carter, Major G. V.	.. .. Waterston Manor, Dorchester ..	1	1	0
Carter, J. & Co.	.. .. Raynes Park, London, S.W. ..	1	0	0
Cartwright, T. G.	.. .. 30, Beaufort Gardens, London, S.W.	1	0	0
†Cary, John	.. .. The Priory, Shepton Mallet ..			
†Cary, W. H.	.. .. Junior Constitutional Club, Piccadilly, London, W.1. ..			
Castleman, E. W. F.	.. .. Chettle, Blandford, Dorset ..	1	0	0
Cataline Co. (Ld.)	.. .. Bristol	1	0	0
Cater, Mrs. Bertram	.. .. Bentworth Lodge, Alton, Hants ..	1	1	0
Cattybrook Brick Co. (Ld.)	.. .. Provident Buildings, 15, Clare Street, Bristol	1	0	0
Cave, Captain A. L.	.. .. Sherwood, Newton St. Cyres, Exeter	1	0	0
Cave, Sir C. H., Bart	.. .. Sidbury Manor, Sidmouth ..	1	0	0
Cave, D. C. A.	.. .. Sherwood, Newton St. Cyres, Devon	1	0	0
Cave, E. C.	.. .. Paccombe, Sidford, Sidmouth, Devon	1	0	0
Cave, Mrs. E. C.	.. .. Paccombe, Sidford, Sidmouth, Devon	1	1	0
Cecil, Lt.-Col. R. E., D.S.O.	.. .. Passford House, Lymington, Hants.	1	0	0
Chester, J. & Co.	.. .. York House, Newmarket ..	1	0	0
Chichester, H.	.. .. Verbere, Willand, Cullompton ..	1	0	0
†Chick, J. H.	.. .. Wynford Eagle, Maiden Newton, Dorset			
†Chick, W. D.	.. .. Compton Valence, Dorchester ..			
Chidgey, H.	.. .. Plume of Feathers Hotel, Minehead	1	1	0
Chivers and Son	.. .. Histon, Cambridge ..	1	0	0
Christie, A. L.	.. .. Tapeley Park, Instow, N. Devon ..	1	1	0
Christie, Capt. J.	.. .. The Goat Farm, Ringmer, Sussex	1	0	0
Chubb, Sir C., Bart.	.. .. Bapton Manor, Codford, Wilts ..	1	0	0

Name.	Residence.	Subscriptions		
		£	s.	d.
Churchill, The Viscount, G.C.V.O.	Carlton Club, Pall Mall, London, S.W.1.	1	0	0
†Churchward, F.	Hill House, Stoke Gabriel, near Totnes . . . . .	..	..	..
Clancy, M. D.	Lower Knowle, Bristol	1	0	0
Clare, A. J.	Beach House, Wells	1	0	0
*Clarendon, Earl of.	The Grove, Watford	2	2	0
Clark, H.	Keward House, Wells	1	0	0
Clark, H. B.	Butleigh, Glastonbury	1	0	0
*†Clark, J. J.	Goldstone Farm, Hove, Sussex (Hon. Local Sec., 1885).. . . .	..	..	..
†Clarke, C. S.	Tracy Park, near Bath . . . . .	..	..	..
Clarke, J. W.	Bridwell, Cullompton	1	0	0
Clatworthy, E.	Cutsey, Trull, Taunton	1	1	0
†Clatworthy, W. B.	Cutsey, Taunton . . . . .	..	..	..
*Clifden, Viscount	Lanhydroc, Bodmin	2	0	0
Clinton, Lord.	Heanton Satchville, Dolton, N. Devon	1	0	0
Clive, Capt. E. A. B.	Brympton, near Yeovil, Somerset	1	0	0
Cobb, R.	Watlynge, near Rochester.	1	0	0
*Coldwell, Major R. C.	Spring Grove, Milverton, Somerset	2	0	0
Colebrook, H. J.	Fulmer Hall, Fulmer, Bucks	1	0	0
Coleridge, Lord	The Chanter's House, Ottery St. Mary, Devon	1	0	0
Collet, Sir Mark, Bart.	St. Clare, Kemsing, Sevenoaks	1	0	0
Collins, A. H.	Manor Farm, Codford St. Peter, Wilts.	1	0	0
Collins, J. S.	St. George's Lodge, Oldfield Park, Bath	1	1	0
Colman, Sir J., Bart.	Gatton Park, Surrey	1	0	0
Cohner, Jas. (Ld.)	Union Street, Bath	1	0	0
Colville, H. K.	Bowden Hall, Gloucester	1	0	0
Cook, R.	Widhayes, Tiverton	1	0	0
Cookson, Mrs. Freville . . . . .	.. . . .	1	0	0
Coombes, E. M.	Sandydown Farm, Stockbridge, Hants.	0	10	0
Cooper, Sir G., Bart.	Hursley Park, Winchester	1	0	0
Cooper, Major R. W.	Rush Court, Wallingford	1	0	0
Cope, W.	Southerndown, Glam.	1	1	0
Corbet, E. W. M.	Bute Estate Office, Cardiff	1	1	0
Cornish, Dr.	Pixford, Taunton	1	0	0
†Cornwallis, Lord, C.B.E., D.L.	Linton Park, Maidstone . . . . .	..	..	..
Cory, Sir Clifford J., Bart., D.L.	Llantarnam Abbey, Mon.	1	0	0
Cory-Wright, Miss B. G.	Ayot Place, Welwyn, Herts.	1	0	0
Coryton, Capt. J. T.	Pentillie Castle, St. Mellion	1	0	0
†Cotterell, Sir J. R. G., Bart.	Garnons, Hereford . . . . .	..	..	..
Cotton, R. W.	Baltonsborough, Glastonbury	1	0	0
Coultrip, A. W.	Norwood Manor, East Church, Kent	1	0	0
†Courage, Raymond.	Shenfield Place, Brentwood, Essex . . . . .	..	..	..

Name.	Residence.	Sub- scriptions.		
		£	s.	d.
*Courtenay, Capt. P. D. A. . . .	Greenlawn, Burnham-on-Sea, Som- erset	2	2	0
Courthorpe, Col. Sir G. L., Bart., M.P.	Whiligh, Sussex	1	0	0
Cowie, G. A.	39, Victoria Street, Westminster, London, S.W.1.	1	0	0
Cox, S. V.	Pwlpen Farm, Bishopool, Newport, Mon.	0	10	0
Cox & Sons	47, City Road, Cardiff	1	0	0
Cramond, H.	York Street Wine Vaults, Bath	1	0	0
Crawford, H. W.	Lloyd's Bank Chambers, Swansea	1	0	0
Criddle, A. M. B.	Worle, Weston-super-Mare	1	0	0
Cridlan, J. J.	Maisemore Park, Gloucester	1	0	0
Cripps, Major F. W., D.S.O.	Ampney Park, Cirencester	1	0	0
Croker, W. J.	Pitts Farm, Chilcote, Wells	1	0	0
Crompton's Pure Salt Brick Co. (Ld.)	255, Chapel Street, Salford	1	0	0
*Cross, Carlton	Wyke Hall, Gillingham	2	0	0
Cross, G.	Smart's Hill House, Penshurst, Kent	1	0	0
Crowther, F. C. (Co-op. Whole- sale Society)	1, Balloon Street, Manchester	1	0	0
Crumpler, J.	Longlands, North Coker, Yeovil	1	1	0
Crutchley, P. E.	Limminghill Lodge, Ascot	1	0	0
Cumber, W. J.	Theale, Berks	1	0	0
Cuning, Edwin J.	Langhill, Moretonhampstead, Devon	1	0	0
Cundall, H. M., I.S.O., F.S.A.	4, Marchmont Gardens, Richmond Hill, Surrey	1	0	0
†Curre, E.	Itton Court, Chepstow . . . . .	..	..	..
Currie, L.	Minley Manor, Farnborough, Hants.	1	0	0
Dalrymple, Major F. B.	Bartley Lodge, Cadnam, Hants	1	0	0
†Daniel, H. T.	The Red House, Cannington, Bridgwater . . . . .	..	..	..
Darby, E.	Liscombe, Dulverton	1	0	0
†Darell, D.	Hillfield House, Stoke Fleming, near Dartmouth . . . . .	..	..	..
†Daresbury, Lord	Walton Hall, Warrington . . . . .	..	..	..
Davey, Sleep & Co. (Ld.)	Excelsior Plough Works, Plymouth	1	0	0
†Davey, T. R.	Wraxall Court, near Bristol . . . . .	..	..	..
David & David	11, Cathedral Road, Cardiff	1	0	0
*†Davies, Major G. F., M.P.	Leigh House, Chard, Somerset . . . . .	..	..	..
Davies, H. J. Pope	Pixley Court, Ledbury, Hereford- shire	1	0	0
Davies, T. W.	The Cefn, Pontypridd	1	0	0
†Davis, H. J.	Sutton Montis, Yeovil, Somerset . . . . .	..	..	..
Daw, J. E.	4, Louisa Terrace, Exmouth	1	1	0
Dawnay, Major-Gen. G. F.	Longparish House, Whitchurch, Hants.	1	0	0
Dawson, C. F.	14, Henleaze Road, Westbury-on- Trym, Bristol	1	0	0

Name.	Residence.	Sub- scriptions		
		£	s.	d.
Dawson, Miss N.	Holne Park, Ashburton, S. Devon	1	0	0
Day, J.	Ston House, East Pennard, Shepton Mallet	1	1	0
Day & Sons (Ld.)	Crewe	1	0	0
*†Debenham, E. R.	Briantspuddle, Dorchester .. ..	..	..	..
†Delme-Radcliffe, Lt.-Col. A., D.S.O.	Shenley House, Headcorn, Kent .. ..	..	..	..
De Rothschild, Mrs. L.	Exbury, Southampton	1	0	0
Dening & Co.	Chard, Somerset	1	0	0
Denning, R. J.	Little Ashwell Farm, Ilminster	1	0	0
Dennis, S.	Latton, Cricklade, Wilts	1	0	0
†Devas, H. G.	Ightham Warren, Sevenoaks, Kent .. ..	..	..	..
Devenish, H. N.	Little Dunford, Salisbury	1	0	0
*Devon, Earl of	Powderham Castle, Devon	2	0	0
Diabolo Separators (Ld.)	31-35, Beviden Street, Hoxton, London, N.	1	0	0
Dickinson, G.	The Mount, Cork-in-Cartmell	1	0	0
Dickinson, W. F.	Kingweston, Taunton	1	0	0
Dickson & Robinson	Cathedral Street, Manchester	1	1	0
*Digby, Lt.-Col., The Lord D.S.O., M.C. (Coldstream Guards)	Minterne, Cerne Abbas	2	0	0
Digby, Major F. J. B. Wingfield, D.S.O.	Sherborne	1	0	0
Dinam Estates Co.	The Offices, Llandinam, Montgomery	1	0	0
†Dixon, Oliver	Crescent Road, Reading .. ..	..	..	..
†Dobson, H. V.	Bath and County Club, Bath .. ..	..	..	..
Dorling, Major L. H. G.	Enford, near Marlborough, Wilts.	1	0	0
Dormer, Capt. C. W. C.	Rousham, Oxford	1	0	0
Dorse, E. G.	Trull, Taunton	1	0	0
*Douglas, J.	Hanham Road, Kingswood, near Bristol	2	0	0
Drew W. (Harrison, McGregor & Co.)	Albion Iron Works, Leigh, Lanes.	1	0	0
Drummond, Sir F. D. W., C.B.E.	Cawdor Estate Office, Carmarthen	1	0	0
Duckham, A.	Rooks Hill, Bitchett Green, near Sevenoaks	1	0	0
Duckworth, Major A. C.	Orchardleigh Park, Frome	1	0	0
Dugdale, Major J. G.	The Abbey, Cirencester	1	0	0
Dunkel, W.	Fernhill Park, Windsor Forest	1	0	0
Dunlop, I. M.	Avonhurst, Sneyd Park, Bristol	1	0	0
Dunlop, J.	Wellington House, Buckingham Gate, London, S.W.1	1	0	0
*Durand, Lady	Croft House, Somerford Keynes, Swindon	2	0	0
Eagle Range and Gas Stove Company (Ld.)	Catherine St., Aston, Birmingham	1	0	0
*Earl, H. F.	Biddenden, Kent	2	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
*†Eastwood, J. E. .. ..	.. ..	1	0	0
Eaton, G. T.	Thurston Hall, Framfield, Sussex	1	0	0
Economic Fencing Company (Ld.) (Dulcken, H. E.) ..	Billiter House, Billiter Street, London, E.C.3.	1	0	0
Eden, R. H. H.	Heytesbury, Wilts.	1	0	0
†Edmondson, A.	Woodelose, Silverdale, Lancashire	1	1	0
Edwards, A. P.	Gog's House, Wedmore, Somerset	1	1	0
Edwards, R. G.	Burrington Vicarage, Bristol ..	1	1	0
Edwards, W. H. G.	Butcombe Court, Wrington ..	1	0	0
Edwards, Capt.	Catch Farm, Barrow Gurney, Somerset	1	0	0
*Edwards-Ker, Lieut.-Col. D. R., O.B.E., M.A. ..	Principal, Seale Hayne Agricultural College, Newton Abbot ..	2	0	0
Eldridge, Pope & Co. ..	Dorchester	1	0	0
Elton, B. A.	Langford, near Bristol	1	0	0
Elwes, Lt.-Col. H. C., D.S.O., M.V.O.	Colesborne, Cheltenham	1	1	0
Elwes, P. F. C. .. ..	.. ..	1	0	0
Errington, R.	Victoria Mills, Sunderland ..	1	0	0
Erskine, Lord, M.P. ..	Charlton, near Bristol	1	0	0
Esdaile, W. C. H.	Cothelstone House, Taunton ..	1	0	0
Eustice, G. H.	Bezurrell, Gwinear, Hayle, Cornwall	1	0	0
Evans, H. M. Glynn ..	Plasissa, Llangennech, Carmar- thenshire	1	0	0
Evans, Councillor J. ..	5, Crescent Gardens, Bath ..	1	0	0
Evans, R. P., J.P.	Woodhatch House, Reigate, Surrey	1	0	0
Evans, T. .. ..	.. ..	1	0	0
†Evan-Thomas, Commander A.	Caerwnon, Builth Wells, R.S.O. ..	..	..	..
Evan-Thomas, Admiral Sir Hugh	Charlton House, Shaftesbury ..	1	0	0
†Eve, Mr. Justice	Royal Courts of Justice, London, W.C.2 .. ..	..	..	..
Evelyn, Mrs.	Wotton House, near Dorking ..	1	0	0
Everard, W. L., M.P. ..	Ratcliffe Hall, Leicester	1	0	0
Ezra, E.	Lock, Partridge Green, Sussex ..	1	0	0
*†Falmouth, Viscount ..	Tregothnan, Truro .. ..	..	..	..
Fane, Major N. H.	Boyton Manor, Codford, Wilts ..	1	0	0
†Farwell, Major E. W. ..	Hylton Estate Office, Kilmersdon, Bath .. ..	..	..	..
Fastnut (Ld.)	17, Newnham Road, Wood Green, London, N.22	1	1	0
Faudel-Phillips, Major H. ..	.. ..	1	0	0
Fenwick, M.	Abbotswood, Stow-on-the-Wold ..	1	1	0
*Ferguson-Davie, Sir W. J., Bt.	Creedy Park, Crediton	2	0	0
Ferrand, G. F.	Clanville Lodge, Andover, Hants.	1	0	0

Name.	Residence.	Sub- scriptions.		
		£	s.	d.
Ferriman, R. F.	Epping Green Farm, Little Berk- hampsted, near Herts	1	0	0
Ferriman, W. R.	Bower Ashton, Bristol	1	0	0
Fewtrell, O. J.	Estate Office, Wells	1	0	0
Firth, Capt. C. P. L.	Compton Durville Manor, South Petherton, Somerset	1	0	0
Fison, J. & Co.	Ipswich	1	0	0
*Fitzgerald, Lady	Buckland, Faringdon, Berks.	2	0	0
FitzGerald, Mrs. M. M.	Marsden Manor, Cirencester	1	0	0
Fitzwalter, Lord	Goodnestone, Dover	1	0	0
Fitzwilliams, Col. E. C. L., C.M.G.	Bryn-teifi, Pentrecourt, Llandyssul	1	1	0
Fleming, Mrs. P.	Grendon Hall, Aylesbury, Bucks.	1	0	0
Flemming, Lt.-Col. Gordon	Norton Beauchamp, Kewstoke, Somerset	1	1	0
Fletcher, Capt. A. M. T.	Margam Park, Port Talbot	1	0	0
Flint, G. Gordon	High Firs, Chandlers Cross, Croyley Green, Herts.	1	0	0
*†Folkestone, Viscount	Longford Castle, Salisbury .. ..	..	..	..
Ford, R.	Hartfield, Cotham Park, Bristol	1	0	0
*†Forester, Capt. F. W. .. ..	.. ..	..	..	..
Forshaw, W. H.	Slythelhurst, Ewhurst, Guildford	1	0	0
†Fortescue, J. B.	Boconnoc, Lostwithiel, Cornwall .. ..	..	..	..
Fortune, R.	Newhouse, Cranleigh, Surrey	1	0	0
Four Oaks Spraying Machine Co. (Ld.)	Four Oaks Works, Sutton Cold- field	1	0	0
Fowler & de la Perrelle	Porter's Lane, Southampton	1	0	0
Fowler, John & Co. (Leeds) Ld.	Leeds	1	0	0
Fox, Brothers & Co.	Wellington, Somerset	1	1	0
Fox, Mrs. A.	Brislington House, near Bristol	1	0	0
Fox, C. L.	Rumwell Hall, Taunton	1	0	0
Fox, J. H.	Robins Close, Wellington, Somerset	1	0	0
Fox, R. A.	Yate House, Yate, Glos.	1	1	0
Foxcroft, C. T., M.P.	Hinton Charterhouse, Bath	1	1	0
Francis, F. S.	Wilkinthroop, Templecombe	1	0	0
French, W. T. & Son	St. Mary Street, Ladywood, Bir- mingham	1	0	0
Fry, A. M.	8, Zion Hill, Clifton, Bristol	1	1	0
Fry, Cecil	Grove House, Frenchay, Bristol	1	0	0
Fry, C. A. H.	Ashton Lodge, Long Ashton, Bristol	1	0	0
Fry, H. A.	Monmouth Place, Bath	1	1	0
*Fry, J. S. & Son (Ld.)	Union Street, Bristol	2	2	0
Fryer, W. J.	Holme Park, Sonning, Berks	1	1	0
*Fuller, Major R. F.	Great Chalfield, Melksham, Wilts.	2	0	0
Fuller, Mrs. R. F.	Great Chalfield, Melksham, Wilts.	1	0	0
Fuller, S. & A.	Bath	1	0	0
Fursdon, E. S.	The Elms, Alphington	1	1	0
Gaite, A. J.	Charlton, Radstock	1	0	0
Gale, G.	The Grove, Winterbourne, near Bristol	1	0	0

Subscriptions.

cxiii

Name	Residence	Sub- scriptions
		£ s. d.
Galloway, J.	Holmsted Manor, Cuckfield, Sussex	1 1 0
Gantlett, W. R. & Son	Manor Farm, Fairfield, Glos. . .	1 1 0
Garbutt's Products (Ld.)	Longhope, Glos.	1 0 0
Gardiner, Sons & Co.	Nelson Street, Bristol	1 1 0
Garne, W.	Aldsworth, Northleach	1 0 0
Garnett, W.	Backwell Hill House, West Town, R.S.O., Somerset	1 0 0
Garton, J. A., M.C.	Pylle Manor, Shepton Mallet, Somerset	1 0 0
Gibbins, T.	Glynfelin, Neath	1 0 0
†Gibbs, Major A. H.	Pytte, Clyst St. George, Exeter . .	..
†Gibbs, Mrs.	Pytte, Clyst St. George, Exeter . .	..
†Gibbs, H. M.	Barrow Court, Flax Bourton, Bristol . . . . .	..
Gibbs, Lt.-Col. W. O.	Home Farm, Barrow Gurney . . .	1 0 0
†Gibbs, Mrs. W. O.	Home Farm, Barrow Gurney . . .	..
Gibson, J. T.	Warren House, Wrington	1 1 0
Gisborne, Col. L., C.M.G.	Lingen Hall, Bampton Bryan . .	1 0 0
†Gladstone, J.	Bowden Park, Chippenham . . .	..
Glanely, Lord	Lackham, Lacock, Wilts. . . .	1 0 0
Glanville, F.	Poplar Farm, Westbury-sub-Men- dip, Wells	1 1 0
Glencross, T.	The Chestnuts, Seagry, Chippenham	1 1 0
Glover, J. H.	Cornwood, S. Devon	1 0 0
Glyde, J. Chaffey	Portishead	1 0 0
Glyn, Capt. Sir R. F., Bart. . . .	.. . . .	1 0 0
Godfrey, J. B.	Downside Farm, Shepton Mallet . .	1 0 0
†Godman, C. B.	Woldringfold, Horsham . . . .	..
Godman, J.	The Raswells, Hascombe, God- alming	1 0 0
Godwin, Warren and Co., (Ld.)	140, Redcliffe Street, Bristol . .	1 0 0
Goldsmith, J.	Blendworth, Horndean, Cosham, Hants	1 0 0
Goodchild, G. A.	The Oak House, Great Yeldham, Essex	1 1 0
Goodman, A. & Sons	3, Hammett Street, Taunton, and Broad St. House, London, E.C. .	1 0 0
Gordon, G. H.	The Barn House, Sherborne . . .	1 0 0
*Gordon, Major R.G.S., M.C. . . .	Langton House, Blandford . . .	2 0 0
†Gorringe, Hugh	Kingston-by-Sea, Brighton . . .	..
Gosling, R. H.	Hawthorne Hill, Bracknell . . .	1 0 0
Gough, Major G.	13, Grosvenor Place, London, S.W.1	1 0 0
Graham-Clarke, Capt. J. E. H. . . .	Frocester Manor, Stonehouse, Glos.	1 0 0
Grainger, Lady Muriel Liddell . . .	Ayton Castle, Berwickshire . . .	1 0 0
Grant-Ives, C. E.	Bradden House, Towcester, North- amptonshire	1 0 0
Grant, W. J.	42, Llanthewy Rd., Newport, Mon.	1 0 0
Gray, R.	The Manor, Lechlade, Glos. . . .	1 0 0

Name	Residence.	Sub- scriptions.		
		£	s.	d.
Greaves, R. M.	Wern, Portmadoc, North Wales . .	1	0	0
Green, H.	Tanyard Farm, Oakhill, Bath . .	1	0	0
†Green, Major H. L.	The Hall, Poulton Lanulyn, Bromborough, Cheshire			
†Greenall, Mrs. C. E.	The Manor, Carlton Scroop, Grantham			
Greenwell, Sir B., Bart.	Marden Park, Woldingham, Surrey	1	0	0
Greenwood, J. C.	Westfield Farm, Bloomfield Road, Bath	1	0	0
Gregory, W. & Co.	Wellington, Somerset	1	1	0
†Guest, Miss	Inwood, Templecombe			
*Guilford, Earl of	Waldershare Park, Dover	2	0	0
Guille, H. C. de Stevens	Westleigh House, Westleigh, near Bideford, N. Devon	1	0	0
Gullick, W. F., F.R.H.S.	Waterloo Nursery, Salisbury	1	0	0
Gunther, C. E.	Tongwood, Hawkhurst, Kent	1	0	0
Guy Motors (W. H. Moon)	Freshlands, 2, St. Paul's Road, Weston-super-Mare	1	0	0
Gynn, R. & Son	Tresley, Camelford, Cornwall	1	0	0
*Hambleton, Viscount	Greenlands, Henley-on-Thames . .	5	0	0
*Hambro, Sir Eric, K.B.E.	Milton Abbey, Blandford, Dorset	2	0	0
Hambro, H. C.	The Lodge, Tadworth, Surrey . .	1	0	0
Hancock, C. L.	The Manor House, Cothelstone, Taunton	1	1	0
Hancock, F. C.	Ford House, Wiveliscombe, Som.	1	1	0
Hancock, H. C.	The Court, Milverton, Taunton . .	1	0	0
Hancock, P. F.	Quarry Cleeve, Wiveliscombe, Somerset	1	1	0
Hancock, Mrs. R. D.	Halse, Taunton	1	0	0
Harbottle, E. H.	Topsham, Devon	1	0	0
Harding, E. G.	Foxcote, Grittleton, Chippenham	1	0	0
Harditch, J. A.	Shipway Gate Farm, Portbury, Bristol	1	0	0
Hardwick, A.	Easton-in-Gordano, Bristol	1	0	0
Hare, Lady K. F.	Brokenhurst Park, Hants	1	0	0
Hargreaves, J.	The Priory, Royston, Herts	1	0	0
Harris, H.	Singleton Park Farm, Sketty, S.O., Glam.	1	0	0
Harris, H. H.	New Farm, Besford, Worcester . .	1	0	0
Harrison, D.	The Grove, Tenby	1	0	0
Harrison, McGregor & Co.	Leigh, Lancashire	1	0	0
†Harrison, Lt.-Col. W. E.	Wychmor Park, Burton-on-Trent . .			
Harrison, T. D.	Albion Iron Works, Leigh, Lancs.	1	0	0
Hart, A.	"Risingholme," Heathfield Tower, Sussex	1	0	0
Hartley, Major H. B.	Tytherington, Heytesbury, Wilts.	1	0	0
Haslam, Major A. H. C.	St. Albans, Weston, Bath	1	0	0
Hassard, Miss K. M.	41, Palace Road, London, S.W.2.	1	0	0
Hawker, Capt. H. G.	Strode, Ermington, Ivybridge . .	1	0	0

Subscriptions.

CXCV

Name.	Residence.	Sub- scriptions.		
		£	s.	d.
Hawkes & Son	32, East Street, Taunton	1	1	0
†Haydon, Lt.-Col. W. H. ..	Maidford, Malmesbury, Wilts ..	..	..	..
Hayes-Sadler, Mrs. A. F. ..	Little Hallingbury Park, Bishop's Stortford, Essex	1	0	0
•Hayes, F. J.	West Pennard, Glastonbury ..	1	0	0
Hayes, G. C.	The Greenway, Shurddington, Chel- tenham	1	0	0
Haynes, R. P.	Delves Green Farm, Wednesbury ..	1	0	0
Hayward, Mrs. Victor ..	Bookham Grove, Bookham, Surrey ..	1	0	0
Headlam, Col. T. A. ..	Pipers Hey, Evershot, Dorset ..	1	0	0
Headlam, Mrs.	Pipers Hey, Evershot, Dorset ..	1	0	0
Heasmon, Miss Dinah ..	Southwick, East Grinstead, Sussex ..	1	0	0
Heathcoat-Amory, Sir I. M., Bart.	Hensleigh, Tiverton, Devon ..	1	0	0
Helps, Rev. Canon A. ..	Puddletown, Dorchester, Dorset ..	1	0	0
Helps, Mrs. A.	Puddletown, Dorchester, Dorset ..	1	0	0
Helvar, Comm. K. C., D.S.O.	Poundesford, Taunton	1	0	0
*†Henderson, Lieut.-Col. Hon. H. G.	Busecot Park, Faringdon, Berks. ..	..	..	..
Heneage-Vivian, Rear Admiral Walter	Parc le Breos, Penmaen, Glam. ..	1	0	0
Henry, Lt.-Col. F.	Elmstree, Tetbury	1	0	0
Hervey, Lord Walter ..	Rumsey House, Calne	1	0	0
Heseltine, Lt.-Col. J. E. N. ..	Hawking Down Farm, Hindon, Salisbury	1	0	0
Hesse, F. W.	Weston Hill, Weston Park, Bath ..	1	0	0
†Hewitt, G. Southby ..	Dav, Son & Hewitt, 22, Dorset Street, London, W.1 .. ..	..	..	..
*Hewthorn & Co.	7, Lambs Passage, Chiswell Street, London, E.C.1	2	0	0
Heyworth-Savage, Lieut.-Col. C.	Bradwell Grove, Burford, Oxon ..	1	0	0
Hicks-Beach, Lady Susan ..	Coln S. Aldwyn, Fairford, Glos. ..	1	0	0
Higgins, B.	Millhouse Farm, Evereccech ..	0	10	0
Hignett, G.	Hodshill, Southstoke, Bath ..	1	1	0
Hignett, Mrs. G.	Hodshill, Southstoke, Bath ..	1	1	0
Hignett, L.	Hook End Farm, Checkendon, Oxon ..	1	1	0
†Hill, B. H.	Uphill, Weston-super-Mare ..	..	..	..
Hill, C. L.	Harptree Court, East Harptree, near Bristol	1	0	0
Hill, H.	Paulton, near Bristol	1	1	0
Hill, H. W.	High Street, Newmarket	1	0	0
Hill, S.	Langford House, Churchill, Bristol ..	1	0	0
Hill, Major V. T.	Woodspring Priory, near Weston- super-Mare	1	1	0
Hill, W. H.	Bushbury Hall, Wolverhampton ..	1	0	0
†Hinckes, Captain R. T. ..	Mansel Court, Mansel Lacey, Hereford .. ..	..	..	..
Hine, W. H.	6, High Street, Yeovil	1	0	0
Hippisley & Sons	Wells, Somerset	1	0	0
Hippisley, R. J. B.	Ston Easton Park, Bath	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Hiscock, Victor	France Farm, Blandford	1	1	0
†Hoare, Sir H. H. A., Bart	Stourhead, Zeals, S.O., Wilts			
Hobhouse, A. L.	Hadsden House, Castle Cary, Somt.	1	0	0
†Hobhouse, R. A.	Pondmead, Oakhill, Somerset			
*Hobhouse, Rt.-Hon. H. ..	Hadsden House, Castle Cary	2	0	0
†Hoddinot, S.	Dean Vale, West Cranmore, Shepton Mallet			
Hodges, W. F.	Dorchester, Dorset	1	0	0
Hodgson, W. F. S.	Morebath, Bampton, Devon	1	1	0
Holbeck, R. H. A.	Farnborough Grange, Banbury	1	0	0
Holland, J. H.	Peene House, Newington, Folkestone	1	0	0
Holmes, Carl	Clover Top Farm, Welwyn, Herts. ..	1	0	0
Holmes, Mrs. F. J.	Middleton Stoney, Bicester, Oxon ..	1	1	0
Holt Needham, O. N.	Burdocks, Fairford, Gloucester ..	1	0	0
Holt, Thomas G.	North Dean House, Hughenden, Bucks	1	0	0
Hood, Capt. A. O.	Buckhill House, Calne	1	0	0
Hooley, Terah F.	Dry Drayton, Cambridge	1	0	0
Hooper, Bros.	Newburgh, Wmfrith, Dorchester ..	1	0	0
Horne, H. S.	Aldsworth, Emsworth, Hants	1	0	0
Hort, J. F.	Bickley Farm, Hanham, nr. Bristol ..	1	0	0
Horton-Starkie, Rev. Preb. Le G. G.	Wellow Vicarage, Bath	1	1	0
Hosegood, R. G.	Aller Farm, Williton, Somerset	1	1	0
Hosking, W. L.	Fentengollan, Probus, Cornwall	1	0	0
Hoskins, T. C.	Manor Farm, Hemington, Bath	1	0	0
Hoskyns, H. W. W.	The Manor, North Perrott, Crewkerne	1	0	0
Hotson, H. S. (Wolseley Sheep Shearing Mach. Co (Ld.) ..	Alma Street, Birmingham	1	0	0
House, J.	"Walkers," Boro'bridge, Bridgwater ..	1	0	0
Howard, A. H. S.	Thornbury Castle, Gloucester	1	0	0
Howard, J. & F.	Bedford	1	0	0
†Hughes, A. E.	The Laurels, Bargates, Leominster ..			
Humphrey, L. J.	Sardinia House, Kingsway, London, W.C.2	1	0	0
Humphries, Sir Sidney, J.P.	Eastfield Lodge, Westbury-on-Trym, Bristol	1	1	0
Hunloke, Mrs. P.	Cowbridge, Malmesbury, Wilts	1	1	0
Hunter, Capt. T.	Aylesbeare, near Honiton	1	0	0
Huntington, Major A. W. ..	Wellesbourne House, Warwick	1	0	0
†Hurle, J. C.	Kilve Court, Bridgwater			
Hurle, Major J. A. Cooke ..	.. ..	1	1	0
Hurst & Son	152, Houndsditch, London, E.1	1	0	0
*Hussey, A. H.	Maincombe, Crewkerne	2	0	0
Huttenback, Major H., R.H.A.	1, Lenox Gardens, London, S.W.1 ..	1	0	0
†Hylton, Lord	Ammerdown, Radstock			
*Ilchester, Earl of	Melbury, Dorchester	2	2	0
Iles, D.	Lyegrove, Badminton	1	0	0
Imbert-Terry, F. B.	Blue Hayes, Broadclyst, Devon	1	0	0

Subscriptions.

excvii

Name.	Residence	Sub- scriptions.		
		£	s.	d.
Imbert-Terry, Mrs. L. ..	Blue Hayes, Broadclyst, Devon ..	1	0	0
Imperial Live Stock Insur- ance Co.	27, Cavendish Sq., London. W.1 ..	1	0	0
Inman, A. E.	Chandos Road, Redland, Bristol ..	1	1	0
International Harvester Co. (Ld.)	Harvester House, 259, City Road, E.C.1	1	0	0
*Ismay, J. H.	Iwerne Minster, Blandford, Dorset	2	0	0
Jackman, Percy	Pulteney Hotel, Bath	1	0	0
Jackson, Sir Henry Mather, Bart., C.B.E.	St. Mary's Hill, Abergavenny ..	1	0	0
James, A.	Totterdown, Bristol	1	0	0
James, Mark	Home Farm, Ston Easton, Bath ..	1	0	0
Jefferies, Evan	Glebe Farm, Windrush, Burford, Oxon	1	0	0
Jenkins, D.	Boverton Place, Llantwit Major, Glam.	1	0	0
Jenkins, Capt. E.	Netherleigh, Hayle, Cornwall ..	1	0	0
Jenkins, H. W.	c/o F. Capern, Lewin's Mead, Bristol	1	0	0
Jenkins, T. E.	Kilvrough Home Farm, Park Mill, S.O., Glamorgan	1	0	0
Jenkins, Captain Vaughan ..	St. Winifreds, Combe Down, Bath	1	0	0
Jenks, Shirley H.	Elmore, Thorncombe, near Chard	1	1	0
†Jervoise, Mrs. B. A. L. ..	Herriard Park, Basingstoke ..	..	..	..
Jervoise, Major F. H. T. ..	Herriard Park, Basingstoke ..	1	1	0
Jeyes' Sanitary Compounds Company	Cannon Street, London, E.C.4 ..	1	0	0
John, W. Llewellyn	Penmount, Llanelly, Carm. ..	1	1	0
Johns, W. B.	Clinton Estate Office, Dolton, N. Devon	1	1	0
Johnson, L. O.	Peppers, Ashurst, Steyning, Sussex	1	0	0
†Jones, H. G.	Downford, Mayfield, Sussex ..	..	..	..
Jones, H. G. P.	Hillsborough Fruit Farms, Canford, Wimborne	1	1	0
Jones, K. S.	Norton House, West Cross, Swansea	1	0	0
Jones & Son	Tolbury Mills, Bruton	1	1	0
Joyce, J.	Preston, Milverton, Somerset ..	1	0	0
Joyce, Rev. W. W.	Charles Parsonage, South Molton	1	0	0
Keen, R.	Firland Farm, Westbury-sub- Mendip, Wells	1	0	0
Keen, Mrs.	Firland Farm, Westbury-sub-Men- dip, Wells	1	0	0
Kekewich, Sir T. H., Bart. ..	Peamore, Exeter	1	0	0
Kell & Co.	Gloucester	1	0	0
Kemmis, Lt.-Comdr. H. W. A., R.N.	Chilworthy House, Chard, Somerset	1	1	0
†Kemp, L. J.	Maer, Exmouth .. ..	..	..	..
Kendall, W. G.	Yarner, Darlington, Totnes, S. Devon	1	0	0

Name	Residence	Sub- scriptions		
		£	s.	d.
Kennaway, Sir J., Bart.	Escot, Ottery St. Mary	1	0	0
Kenward, E.	Preston House, near Basingstoke	1	0	0
Kenyon-Slaney, Major, M.P.	Bridestow, Devon	1	0	0
Kerry Estates (Ld.)	Estate Office, Warren House, Stanmore, Middlesex	1	0	0
*Keyser, C. E.	Aldermaston Court, Reading	2	0	0
Kidner, S., O.B.E.	Bickley, Milverton, near Taunton	1	0	0
Kidston, G.	Hazlebury, Box, Wilts	1	0	0
Killen, C. J.	Middle Farm, West Horrington, Wells	1	0	0
Killen, J. J.	Rood Farm, Butleigh, Glastonbury	1	0	0
King, Mrs. A. C.	Braishfield Pony Stud, Romsey, Hants	1	0	0
King, E. W.	Chew Magna, near Bristol	1	0	0
King & Sons, R.	Milsom Street, Bath	1	1	0
Kingwell, H. J.	Bow Grange, Totnes	1	0	0
Knight-Bruce, R.	The Sanctuary, Shobrooke, Crediton	1	0	0
Knight, S. J.	Buckingham Lodge, Keynsham, Bristol	1	0	0
†Knollys, C. R.	Richmond Lodge, Richmond Hill, Bath	1	1	0
Knox, E.	7, Raby Place, Bath	1	1	0
†Kruse, W.	St. Blazey, Par, Cornwall	1	1	0
†Lake, C.	Glenthorne, Gravesend	1	0	0
Lake, H.	Combe Lancey, Crediton, Devon	1	0	0
Lambert, R. E.	Roche Court, Winterslow, Wilts	1	0	0
Lance, Brig.-Gen.	Wentfield, Wrotham, Kent	1	0	0
Langford, E. W. (Ld.)	Hereford	1	0	0
Langman, Major A. L., C.M.G.	North Cadbury Court, Yeovil, Som.	1	1	0
Lansdowne, G. E.	Hock Pitt Barton, Over Stowey	1	1	0
Las Casas, L. de	Elliscombe House, Wincanton	1	1	0
Las Casas, Mrs. de	Elliscombe House, Wincanton	1	1	0
Lawes, Algernon (Ld.)	203, Hornsey Road, London, N.7.	1	1	0
Lawrence, Lt.-Col. the Hon.G.	Hill Farm, Oaksey, Wilts	1	0	0
Lawrence, R.	Rull, Cullompton, Devon	1	0	0
Lear, H. H.	Co-operative Wholesale Society, Estate Office, Cherhill, Calne	1	1	0
*Le Bas, R. V.	Winsford, Taunton	2	0	0
Leeder, E. H.	Mount Pleasant House, Swansea	1	0	0
*Leney, A.	Little Haven, Dibden, Parlieu, Hythe, Southampton	2	0	0
Leverton, W. A.	Columb John Farm, Stoke Canon, Exeter	1	0	0
Levy, Sir Maurice, Bart., J.P.	Great Glen House, Great Glen, Leicester	1	1	0
Lewis, Col. E.	23, Bathwick Hill, Bath	1	0	0
†Ley, John Henry	Trehill, Exeter	1	0	0
Liddell, Capt. C. O.	Shire Newton Hall, Chepstow	1	1	0

Subscriptions.

CCXIX

Name.	Residence.	Subscriptions.		
		£	s.	d.
Lindley, Hon. Walter Barry	Corpe House, Taunton	1	0	0
Lindley, Hon. Mrs. Walter ..	Corpe House, Taunton	1	0	0
Lipscomb, Godfrey	Claverton Lodge, Bathwick Hill, Bath	1	0	0
† Lister, J. J.	Falkland House, Lewes .. ..	..	..	..
Lister, R. A. & Co. (Ld.) ..	Dursley, Glos.	1	1	0
Little, Major A. C.	Upton House, Tetbury, Glos. ..	1	0	0
Littleton, W. J.	Holland Barton, Bodmin, Cornwall	1	0	0
Llewellyn, G. & Son	The Churn Works, Haverfordwest	1	0	0
Llewellyn, Sir David R., Bart.	The Court, St. Fagans, Cardiff ..	1	0	0
Llewellyn, Griffiths R. P. ..	.. ..	1	0	0
Llewellyn, Capt. Llewellyn T. E.	Hackwood, Basingstoke	1	0	0
Lloyd, A. W.	Whitechapel Manor, South Molton	1	1	0
Lock, Col. E. H.	Parks, Crediton	1	1	0
Lock, Mrs. E. H.	Parks, Crediton	1	1	0
Lock, Brig.-Genl., F. R. E. . .	Wakehill, nr. Ilminster, Somerset	1	1	0
Loder, Lady	Leonardslee, Horsham, Sussex ..	1	0	0
Londonderry, Marquis of, K.G., P.C., M.V.O.	Plas-Machynlleth, Montgomeryshire	1	0	0
Long, W. F.	Broadway House, Chilcompton, near Bath	1	0	0
Long, W.	Court Farm, Lullington, near Frome	1	0	0
Longrigg, G. E.	Weston Lea, Bath	1	0	0
Lopes, Sir H. Y. Buller, Bart.	Maristow, Roborough, Devon ..	1	0	0
Lowe A.	Keynsham, Bristol	1	0	0
Loxton, A. H.	Croft Farm, Westbury-sub-Mendip, Wells	1	0	0
Loynes, J. H. . . .	J. P. Harvey & Co. (Ld.), Kidderminster	1	0	0
Luckes, S.	Bridge Street, Taunton	1	0	0
Lubbock, E. H. M.	Sidbrook House, Taunton	1	0	0
Ludlow, Lady	Luton Hoo, Luton	1	0	0
*Luff, J. Purnell	The Towers, Evercreech, Bath ..	2	2	0
Lupton, Miss A.	Chalmington, Dorchester	1	1	0
† Lupton, N. D.	Chalmington, Cattistock, Dorset ..	..	..	..
† Lutley, J. H.	Brockhampton, Worcester. . .	..	..	..
Luttrell, Major A. C.	Lea Combe House, Axminster ..	1	1	0
Luttrell, Capt. A. F.	Court House, East Quantoxhead, Bridgewater	1	0	0
Luttrell, Claude M. F.	Ben Mead, Box, Wilts	1	1	0
Luttrell, G. F.	Dunster Castle, Somerset	1	1	0
*Lymington, Viscount	Old Manor Farm, Ellisfield, Basingstoke	2	0	0
*Lysaght, G. L.	Chapel Cleeve, Taunton	2	0	0
MacAndrew, E. G.	Pallinghurst, Baynards, Horsham	1	0	0
Macdonald, H. L. S.	Avondale, Bathford, Bath	1	0	0
Macintosh, J. . . .	The University College, Reading ..	1	0	0
Macleod, Miss K. A.	Markham Farm, Easton-in-Gordano, Bristol	1	0	0

Name.	Residence.	Sub- scriptions		
		£	s.	d.
McWatters, Col. H. C., D.S.O.	Homewood, Hinton Charterhouse, Bath	1	1	0
McWatters, Mrs. C. G. ..	Homewood, Hinton Charterhouse, Bath	1	1	0
Malet, Col. Sir Harry ..	Wilbury, Newton Tony, Salisbury	1	0	0
†Mansell, A. E.	Mount Vernon, Melton Mowbray, Tasmania			
Mansel-Jones, H. M. . . .	Bossington House, Stockbridge, Hants	1	0	0
Mansel-Jones, Mrs. ..	Bossington House, Stockbridge, Hants	1	0	0
Mansfield, T.	Winterbourne Court, Winterbourne Bristol	1	1	0
Mappin & Webb (Ld.) ..	158, Oxford Street, London, W.1	1	1	0
Mapstone, R. G.	Glastonbury	1	0	0
Marshall, L. H.	Chippenham	1	0	0
Martin, Col.	Bishops Caundle, Sherborne ..	1	0	0
Martin, Mrs.	Bishops Caundle, Sherborne ..	1	0	0
Martin, J.	Thorverton, R.S.O., Devon ..	1	0	0
Martin, W. P.	Colleton, near Chulmleigh ..	1	0	0
Martineau, H. M.	The Lodge, Holyport, Berks ..	1	0	0
Martineau, P. E.	Hillside, Cleveland Walk, Bath ..	1	0	0
Martyn, G.	Tremeddan, Liskeard, Cornwall ..	1	1	0
Mason, F. F.	Swansea	1	0	0
Massarella, A.	Belmont, Bentley, Doncaster ..	1	0	0
Masssey-Harris Co. (Ld.), (G. W. Dawkins, General Manager)	54 & 55, Bunhill Row, London, E.C.1	1	0	0
Masters, A.	Church Farm, Rudgeway, Glos. ..	1	0	0
Matthews, H.	Winterbourne, Bristol	1	0	0
*Matthew, R. W.	Adsbrough House, nr. Taunton ..	2	2	0
Maunder, J.	Kingweston, Somerton	1	0	0
Maunder, L. T.	Butleigh, Glastonbury	1	0	0
Mawby, T.	Merryweather & Co., Greenwich, London	1	1	0
May, E. Howard, o/o May and Hassell (Ld.)	Baltic Wharf, Bristol	1	0	0
†Maynard, Howard	Taunton			
Meade-King, W. O. E. ..	Walford, Taunton	1	1	0
Meddick, William G. ..	Fairfield Arms, Fairfield Park, Bath	1	0	0
Membery, R.	37, Southgate Street, Bath ..	1	0	0
Merryweather & Sons, (Ld.)	Greenwich Road, London, S.E.10..	1	1	0
Merson, T. H.	Faringdon, N. Petherton, Bridg- water	1	0	0
Merry, R.	Goulds, Broadclyst, Exeter ..	0	10	0
*Methuen, Field Marshal Lord, C.B., C.M.G.	Corsham Court, Wilts	2	0	0
Methuen, Lady	Corsham Court, Wilts	1	0	0
*Meyrick, Sir G. A. E. T., Bart	Hinton Admiral, Christchurch, Hants	2	2	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
Meyrick, Lady	Hinton Admiral, Christchurch, Hants	1	0	0
*Mildmay of Flete, Lord ..	Flete, Ivybridge, S. Devon ..	2	2	0
†Miles, Lieut.-Col. Sir Charles W., Bart.	The Manor House, Walton-in-Gordano, Clevedon .. ..	..	..	..
Miles, H.	Auctioneer, Farringdon Gurney, Bristol	1	0	0
Millard, F. J.	Bridge Farm, Butleigh, Glastonbury ..	1	0	0
Miller-Hallett, A.	Goddington, Chelsfield, Kent ..	1	1	0
Miller-Mundy, Major G. ..	Red Rice, Andover, Hants ..	1	0	0
Mills, B. W.	31, Cambridge Place, Paddington, London, W.	1	1	0
Minoprio, F. C.	Avening Court, Avening, Glos. ..	1	0	0
Mitchell, Major A. B. ..	Hill End, Henbury, near Bristol ..	1	0	0
Mitchell, Major F. A. ..	Doughton House, Tetbury, Glos. ..	1	0	0
Mitchell, Capt. H. G. ..	Tiptoe Lodge, Hordle, Hants ..	1	0	0
Molassine Co. (Ld.)	East Greenwich, London, S.E. ..	1	0	0
Mond, Sir Alfred, Bart., M.P.	Melchet Court, Romsey	1	1	0
Moody, C.	Maisemoor, Evercreech	1	0	0
Moody, G. W.	Stapleton, Martock, Somerset ..	1	0	0
Moore, G.	Folly Farm, Polsham, Wells ..	1	0	0
†Moore, H. F.	Renee House, 48, Dulwich Road, Herne Hill, S.E. 24 .. ..	..	..	..
Moore, M. H.	The Hellyers, Ipplepen, Newton Abbot	1	1	0
†Moore-Stevens, J. R. C. ..	Woodhayes, Whimble, Devon ..	..	..	..
Moore-Stevens, Col. R. A. ..	Bellenden, Exeter	1	0	0
Morcom, Mrs. F. I.	Clock House, Bromsgrove ..	1	0	0
Morgan, Major L. H. G. ..	Woolcombe, Wellington, Somerset ..	1	0	0
Morland, J. C.	The Orchard, Street, Somerset ..	1	0	0
*Morley, Earl of	Saltram, Plympton, Devon ..	2	0	0
Morris, Capt. T. R.	Sketty Park, Sketty, R.S.O., Glam. ..	1	0	0
Morris, Sir R. A., Bart. ..	Sketty Park, Swansea	1	0	0
Morris, Son & Peard. ..	Auctioneers, North Curry, Taunton ..	1	0	0
Morrison-Bell, Col. E. F. ..	The Close, Tetbury, Glos. ..	1	0	0
*†Morrison, Hugh, M.P. ..	Fonthill House, Tisbury, Wilts ..	..	..	..
Morrison, Major J. A., D.S.O.	Basildon Park, Goring, Reading ..	1	0	0
Mortimer, Capt. A. E. ..	Wall's Court, Stoke Gifford, near Bristol	1	0	0
Mortimer, Major M. W. ..	Longleat Estate Office, Warminster ..	1	1	0
Mountain, H. S.	Groombridge Place, Kent ..	1	0	0
Mount-Edgumbe, Earl of ..	Mount Edgumbe, Devonport ..	1	1	0
Muntz, Mrs. J. O.	Foxhams, Horrabridge, S. Devon ..	1	0	0
Murch, J.	Charlton Mackrell	1	0	0
Murray Smith, Hon. Mrs. ..	Gumley Hall, Market Harborough ..	1	0	0
Naish, R. N. J.	Bickley Lodge, Milverton, Taunton ..	1	1	0
Napier, H. B.	Ashton Court Estate Office, Long Ashton, Bristol	1	1	0
Napier, Capt. W. E. ..	Upton House, nr. Sandwich, Kent ..	1	0	0

Subscriptions.

Name.	Residence.	Subscriptions.		
		£	s.	d.
Naumann, C. C.	Crossways, Baynards, Horsham . .	1	0	0
Naumann, J. H.	Crossways, Baynards, Horsham . .	1	0	0
Neal, W. H.	Yealmpstone Farm, Plympton . .	1	1	0
Neame, F. & T.	Macknade, Faversham	1	0	0
Neaverson, H.	18, Long Causeway, Peterborough . .	1	0	0
Neeld, Sir A. D., Bart., C.B.	Grittleton, Chippenham	1	0	0
Nelder, C. W.	Carnarvon Arms, Dulverton, Somerset	0	10	0
Nell, H.	The Ridge, Chipping Sodbury	1	0	0
Nestlé & Anglo Swiss Condensed Milk Co.	Chippenham	1	0	0
Neville, Mrs. M. H.	Copthorne Farm, near Crawley, Sussex	1	0	0
†Neville, Lieut.-Commander Ralph, R.N.	Butleigh, Glastonbury . . . . .	..	..	..
†Neville-Grenville, Robert . .	Butleigh Court, Glastonbury . . . .	..	..	..
New, H. G.	Craddock, Cullompton, Devon	1	0	0
Newman, Sir R. H. S., Bart., D.L., M.P.	Mamhead Park, near Exeter	1	1	0
Newton, A. E.	Dipford House, Trull, Jaunton	1	1	0
Newton, Chambers & Co. (Ld.)	Thorncliffe, near Sheffield	1	1	0
Nicholett, E. C.	The Lons, Bitton, Gloucestershire . .	1	0	0
Nichols, G.	Demarara House, Colston Avenue, Bristol	1	0	0
Nicholson, R. F.	Woodcott, Whitchurch, Hants	1	0	0
Nickolls, A. W.	Lorna Doone Rustic Works, Barn- staple	1	0	0
Nix, J. A.	Tilgate, Crawley, Sussex	1	1	0
Nixon, W.	The Cottage, Offchurch, Leamington . .	1	0	0
Norman, Messrs C.	Moor Place Farm, Much Hadham, Herts	1	0	0
*Normanton, Earl of	Somerley, Ringwood	2	0	0
Northey, G., J.P.	Cheney Court, Box, Wilts	1	0	0
*Northumberland, Duke of . .	Albury Park, Guildford	2	0	0
Norton, F. H.	Discove House, Bruton, Somerset . .	1	0	0
Nurse, F. G.	Wick Farm, Coxley, Wells	1	0	0
Nutt, Mrs. H. J.	Eastham House, Mytton, near Whalley, Blackburn	1	0	0
†O'Hagan, Lord				
O'Halloran, Miss P.	Fairwood Lodge, Killay, Glam.	1	0	0
O'Hara, C.	19 and 21, Carlisle Road, Eastbourne .	1	0	0
Onslow, Countess of	Clandon Park, near Guildford	1	0	0
Orde Powlett, Hon. N. A. . . .	Bolton Hall, Leyburn, Yorks.	1	0	0
*†Oppenheimer, Sir B., Bart.	.. . . .	..	..	..
Osborne, A. H. W. & Sons . . .	Branch Farm, Mells, Frome	1	0	0
Osmond & Son	Grimsby	1	0	0
Paddison, W. P.	Research Department, Royal Arsenal, Woolwich, London, S.E. 18	1	0	0

Subscriptions.

CCIII

Name.	Residence.	Sub- scriptions.		
		£	s.	d.
Paget, L. C.	Middlethorpe Hall, Yorks. . .	1	0	0
*Paget, Sir Richard, Bart. ..	74, Strand, London, S.W.1. . .	2	0	0
*Palmer, E. E.	Priors Court, Chieveley, Berks . .	2	0	0
†Palmer, J. H.	Pinewood, Burnham-on-Sea, Som- erset			
Palmer, W. H.	York Buildings, Bridgwater ..	1	0	0
Palmer, Mrs. W. Howard ..	Heathlands, Wokingham, Berks	1	0	0
Palmer, Major W. Llewellyn, M.C.	Bearfield, Bradford-on-Avon, Wilts	1	0	0
Parces, H. W. . . .	The Down Farm, Mells, Frome ..	1	1	0
†Parker, Hon. Cecil T. . .	The Grove, Corsham, Wilts ..			
*†Parker, F. J.	Plymouth Street, Swansea ..			
Parker, L. M.	14, Sketty Road, Swansea ..	1	0	0
Parkes, Miss M. M.	Lapal House, Quinton, Birmingham	1	0	0
*Parry, J. E.	Talybryn, Bwlch, S.O., Breconshire	2	2	0
Parry-Okeden, Lieut.-Col. U. E. P.	Turnworth, Blandford	1	0	0
Parsons, F. W.	Speckington, Ilchester	1	0	0
†Parsons, J. D. Toogood ..	Grasmere, East Hoathley, Sussex ..			
†Parsons, R. M. P.	Misterton, Crewkerne			
Partridge, A. A.	Mordref, Plympton, Devon ..	1	0	0
Pass, Captain A. D.	Manor House, Wootton Fitzpaine, Charmouth, Dorset	1	0	0
Patch, H. C.	Dial Farm, Barrow Gurney, Somerset	1	0	0
Patey, Rev. C. R.	Stowford House, Ivybridge ..	1	1	0
Paul, W. H.	Westcott House, Martock, Somerset	1	0	0
Pawlyn, J. H. W.	Messrs. Ransomes, Sims & Jefferies (Ld.), Orweli Works, Ipswich	1	0	0
Peace, A. H.	Creech St. Michael, near Taunton ..	1	0	0
Peacock, Sir W.	3, Buckingham Gate, London ..	1	1	0
Pearce, C. E.	Sea Mills Farm, near Bristol ..	1	0	0
Pearce, E.	Parsonage Farm, Long Ashton, Bristol	1	0	0
Pearce, J.	Parsonage Farm, Long Ashton, Bristol	1	0	0
Pearce, T. H.	Parsonage Farm, Long Ashton, Bristol	1	0	0
Pearcey, T. J.	Peadhill, Tiverton, Devon ..	1	0	0
Peel, Major E. Morton ..	St. Leonards, Langland, near Swansea	1	0	0
Pelly, H. C.	Kentwins, Nutfield, Surrey ..	1	0	0
Pendarves, W. Cole	Pendarves, Camborne, Cornwall ..	1	1	0
*Pender, Major H. Denison, D.S.O.	Strangways, Marnhull, Dorset ..	2	0	0
†Penny, F. W.	Greenway House, Taunton ..			
Pepper, W. F.	New Redlynch Farm, Bruton ..	1	0	0
Perfect Patent Company ..	195, High Street, Brentford, Middlesex			
Perkins, Col. E. K., M.P. ..	31, Winn Road, Southampton ..	1	1	0
Petch, S.	Gainsborough House, Milborne Port	1	0	0
Petch, Mrs.	Gainsborough House, Milborne Port	1	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
Petherick, R., jun.	Acland Barton, Landkey, Barn-			
	staple	0	10	0
Petley, C. & Co.	Staple, Canterbury, Kent	1	0	0
Peto, G., M.P.	15, Great College Street, West-			
	minster, London, S.W.1.			
Petters (Ld.)	Yeovil	1	0	0
Pettifer, T. & Co.	Eydon, Banbury	1	0	0
Peyton, E. P.	Cattespoole, near Bromsgrove . .	1	0	0
Phillips, Sir L. R. . . . .	. . . . .	1	1	0
Phipps, C. B. H.	Chalcot, Westbury, Wilts	1	0	0
Phipps, The Lady Sybil	Chalcot, Westbury, Wilts	1	0	0
Piggott Brothers & Co.	220, 222, 224, Bishopsgate, London,			
	E.C. 2	1	0	0
Pigott, Major and Partners . . .	Hill Place Farm, Knaphill, Surrey	1	0	0
Pinkstone, C. G. (Pinkstone				
(Ld.)	24, Church St., Temple, Bristol . .	1	1	0
†Pinney, R. W. P.	Somerton, Somerset			
Player, J. D.	Lenton Hurst, Nottingham	1	0	0
*Plymouth, Earl of	Hewell Grange, Bromsgrove . . .	4	0	0
*Poltimore, Lord	Court Hall, North Molton, Devon	2	2	0
Poole, Mrs. A. R.	King's Hill, Dursley	1	1	0
Poore, Capt. J.	Estate Office, Badminton, Glos. . .	1	1	0
Pope, Alfred, J.P.	Dorchester	1	0	0
Pope, John	Nowers, Wellington, Somerset . .	1	0	0
Popham, H. L.	Hunstrete House, Pensford, Bristol	1	0	0
Popham, Mrs. H. L.	Hunstrete House, Pensford, Bristol	1	0	0
Porter, F. H.	Greenway Park, Chippenham . . .	1	1	0
Porter, W. J. H.	Glendale Farm, Wedmore	1	0	0
†Portman, Viscount	Buxted Park, Uckfield, Sussex . .			
Portsmouth, Earl of	Barton House, Morchard Bishop,			
	Devon	1	0	0
Powell, G. F.	10, Beaufort West, Bath	1	0	0
Powlett, A. T.	42, Milsom Street, Bath	1	0	0
Preston-Jones, A.	Mickleover House, near Derby . .	1	0	0
†Price, Sir Francis, Bart. . . .	The Rectory Farm, Streatley, Berks			
Price, J. H.	Higher Hill Farm, Butleigh,			
	Glastonbury	1	0	0
Price, W. S.	Nantymadog, Cray, Brecon	1	0	0
Prichard, H. L.	Penmaen, R.S.O., Glam.	1	0	0
Pritchard, E.	Wood Hill Park, Wootton Bassett,			
	Wilts	1	0	0
Pritchard, W. A.	Brentmoor, Brent, South Devon . .	1	0	0
Proctor, H. & T. (Ld.)	Cathay, Bristol	1	1	0
Proudfoot, W.	Tor Gate, Princetown, Devon . . .	1	0	0
Pullin, J. W.	Compton Greenfield, Bristol	1	0	0
Purse, C. E.	Bailey's Court, Stoke Gifford, near			
	Bristol	1	0	0
Pyke, C. C.	Capel Leyse, Holmwood, Surrey . .	1	1	0
Pyke Nott, E. G. I.	Haines Hill, Taunton	1	0	0
Pyman, J. S.	Norsebury, Sutton Scotney, Hants.	1	0	0
Pyman, Mrs. M. S.	Norsebury, Sutton Scotney, Hants.	1	0	0

Subscriptions.

CCV

Name	Residence	Subscriptions.		
		£	s.	d.
Quantock Vale Cider Co.	North Petherton, Bridgwater ..	1	0	0
Quested, J. E. ..	Cheriton, Kent ..	1	0	0
Quicke, Capt. L. A. . .	Newton House, Newton St. Cyres	1	0	0
Rackley, J. & Sons	Hermitage Farm, Silver Street, Edmonton, London, N.18	1	0	0
Radcliffe, Wynham Ivor ..	Druidstone, near Cardiff	1	0	0
*†Radnor, Earl of	Longford Castle, Salisbury .. ..	..	..	..
Rawlence, Ernest A. ..	St. Andrew's, Salisbury	1	0	0
Rawlence, G. Norman ..	Salisbury	1	0	0
†Rawlence, Major M., D.S.O., R.E.	c/o Lloyd's Bank, Cox's Branch, 16, Charing Cross, London, S.W.1	..	..	..
Rea, F. H.	Kite's Nest Farm, near Wotton- under-Edge, Glos.	1	0	0
Readhead, R.	Great House, Hambledon, Godalming	1	0	0
Reading Corporation ..	Manor Farm, Whitley, Reading ..	1	0	0
Reakes, H. F.	Batch Farm, Babington, Radstock	1	0	0
Reakes, T. P.	Page House, Coleford, near Bath ..	1	0	0
Reed, P. J.	Bineham, Long Sutton, Langport	1	0	0
Reed, R. E.	Bineham, Long Sutton, Langport	1	0	0
Rees-Stokes, C. W. . . .	Warwick House, Tenby	1	0	0
Reeves, Robert and John, and Son	Bratton Iron Works, Westbury, Wilts	1	0	0
Reliance Anthracite Ovoids (Ld.)	6, Bathurst Street, Paddington, London, W.2	1	0	0
Rendell, A. J.	Stall Street, Bath	1	0	0
Rennie, J. H.	Porthycarne, Usk, Mon.	1	0	0
Reynolds, Sylvanus .. ..	.. ..	1	0	0
Rich J.	Chapel Farm, Faulkland, Bath ..	1	0	0
Rich, Mrs. E. . . .	Wretham Hall, Thetford	1	0	0
Richardson, Capt. A. ..	Seven Springs, Cheltenham	1	0	0
*Ridley, Col. H. M.	Maperton, Wincanton	2	0	0
Riley, Capt. W. L.	Dunboyne, Minehead	1	1	0
Roach, W.	Trewidden, Buryas Bridge, Cornwall	1	0	0
Roberts, C. M.	9a, York Street, Bath	1	0	0
Roberts, K., M.I.M.E. (J. Coultas, Ld.)	Normanden, Belton Lane, Grantham	1	0	0
Robins, O. T. and A. F. ..	Lidcott Hall, High Bray, South Molton	1	0	0
Robinson, E. S. & A. (Ld.) ..	Redcliffe Street, Bristol	1	1	0
Robinson, John & Co. ..	Bristol	1	1	0
*Robinson, T.	West Town, near Bristol	2	0	0
Roche, Capt. J. W.	Park House, Donyatt, Ilminster ..	1	0	0
Rogerson, R. W. (Ward & Co., Seedsmen)	Northgate Street, Bath	1	0	0
Rolleston, S. V.	15, Brock Street, Bath	1	0	0
Roper, Geoffrey D.	Forde Abbey, Chard	1	0	0
Rothwell, Major	Morebath, N. Devon	1	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
Roundway, Col. Lord, C.M.G., D.S.O., M.V.O.,	Roundway Park, Devizes	1	0	0
Roundway, Lady	Roundway Park, Devizes	1	1	0
Rouse-Boughton, Sir W. St. A., Bart.	Downton Hall, Ludlow	1	0	0
Rouse-Boughton, Lady	Downton Hall, Ludlow	1	0	0
Rowcliffe, E. L.	Stovolds Hill, Cranleigh, Surrey ..	1	1	0
Rowcliffe, H. S.	Knole Lodge, Langton Green, Tunbridge Wells	1	0	0
Rowcliffe, W. C.	Hillside, Bidborough, Kent	1	0	0
Rowland, P. S.	Fairy Hill, Reynoldston, Gower, Glam.	1	0	0
Royal Guernsey Agricultural and Horticultural Society	Guernsey	1	0	0
*†Rubin, Bernard	Halsted, Kent .. ..	..	..	..
Runtley Pedigree Pig Farm (Ld.)	Runtley Wood Farm, Sutton Green, near Guildford	1	0	0
Russell, G.	North Hill Farm, Dundry, near Bristol	1	0	0
Ruston & Hornsby (Ld.) ..	Grantham	1	0	0
†St. Audries, Lord	St. Audries, Bridgwater .. ..	..	..	..
St. John, Col. the Hon. Roland	Langford Budville, Wellington, Somerset	1	0	0
St. John of Bletsoe, Lord ..	Melchbourne Park, Beds.	1	0	0
Salopian Cattle Bowl Co. ..	Prees, Whitechurch, Salop	1	0	0
Salter, Benjamin	Newlands, Broadclyst, Exeter	1	0	0
Salter, T.	Beare Farm, Broadclyst, Exeter ..	1	0	0
Sampson, F. E.	Restholme, Southville, Bristol ..	1	0	0
Samuelson & Co. (Ld.) ..	Britannia Works, Banbury	1	1	0
Sanders, Lt.-Col. Right Hon. Sir R. A., Bart., M.P. ..	Bayford Lodge, Wincanton	1	0	0
Sawtell, G. H.	Kingweston, Taunton	1	0	0
Sayers, Messrs.	Groundwell Manor, Blunsdon, Swindon	1	0	0
Scammell, C. A. J.	Falkland Farm, Norton St. Philip, near Bath	0	10	0
Scott, C. T.	Buckland Manor Farm, Broadway, Worcester	1	0	0
Scrutton, A.	Woodleigh, Bradford-on-Avon, Wilts	1	0	0
Scrutton, Mrs. A.	Woodleigh, Bradford-on-Avon, Wilts	1	0	0
†Seaton, Lord	Buckland Abbey, Yelverton, Devon	..	..	..
Senior and Godwin	Auctioneers, Sturminster Newton, Dorset	1	1	0
Shaw, Mrs. D. E.	Stevning Manor, Stogursey, Bridg- water	1	1	0
Shaw, Col. F. S. Kennedy, C.B.E.	Teffont Magna, Salisbury	1	1	0
Shaw, W. B. K.	Teffont Magna, Salisbury	1	0	0

Subscriptions.

ccvii

Name.	Residence.	Subscriptions.		
		£	s.	d.
†Shaw-Stewart, Walter R. . .	Hayes, Shaftesbury . . .	..	..	..
Sheldon, R. F. . .	West Street House, Wells . .	1	0	0
Shellabear, G. C. . .	Mounty Tavy, Tavistock . .	1	1	0
*Shelley, Sir John, Bart. . .	Shobrooke Park, Crediton . .	2	2	0
*Shelley, J. F. . .	Posbury House, near Crediton . .	2	2	0
Shelley, Mrs. J. F. . .	Posbury House, Crediton . .	1	0	0
Sheppard, P. C. O. . .	Dunraven Estate Office, Bridgend, Glam. . .	1	1	0
Sherriff & Sons . .	Lemsford, Hatfield . .	1	0	0
†Sherston, C. J. T. . .	The Quarry, Amberley, Sussex . .	..	..	..
†Sherston, T. P. D. . .	Estate Office, Templecombe, Somerset . .	..	..	..
*Sidmouth, Viscount . .	Upton Manor, Honiton . .	2	0	0
Silcock, R. & Sons . .	Stanley Hall, Union Street, Liver- pool . .	1	1	0
Simonds, J. Barrow . .	Abbots Barton, Winchester . .	1	0	0
*Singer, W. M. G. . .	42, Charles Street, Berkeley Square, London, W.1. . .	2	0	0
Skidmore, Miss E. . .	Ashleigh Leigh, Box, Wilts . .	1	0	0
Skinner, Board & Co. . .	Exmoor Street, Bristol . .	1	0	0
Skinner, G. C. . .	Pound, Bishops Lydeard . .	1	1	0
Skrine, Miss A. D. M. . .	Warleigh Manor, Bath . .	1	0	0
Slade, T. C. . .	Park Farm, Curry Mallett, Taunton . .	1	0	0
Slatter, J. R. . .	Banwell, Somerset . .	1	0	0
Smart, G. E. . .	Combe Hay Manor, Bath . .	1	1	0
Smith, A. Carlyle . .	Sutton Hall, Woodbridge, Suffolk . .	1	0	0
Smith, A. J. (Ld.) . .	9, Queen's Square, Bristol . .	1	0	0
Smith, D. . .	Court Farm, Stoke Gifford, near Bristol . .	1	0	0
Smith, E. A. . .	Longhills, Lincoln . .	1	0	0
Smyth, Hon. G. N. . .	Ashton Court, Bristol . .	1	0	0
Smyth, Hon. Mrs. . .	Ashton Court, Bristol . .	1	0	0
Smyth-Richards, G. C. . .	Filleigh Lodge, nr. Barnstaple. . .	1	0	0
Sochon, T. H. . .	Tanfield Tye, West Hanningfield, Chelmsford . .	1	0	0
Somerset, Duke of . .	Maiden Bradley, Bath . .	1	0	0
Somerset Farm Institute . .	Cannington, near Bridgwater . .	1	0	0
Somerset Trading Co. (Ld.) . .	Bridgwater . .	1	1	0
†Somerville, A. F. . .	Dinder House, Wells, Somerset . .	..	..	..
Southwell, G. R. . .	Holbury Farm, Lockerley, near Romsey . .	1	0	0
Southwood, J. W. C. . .	1, St. Peter's Terrace, Twerton, Bath . .	1	0	0
Spear Brothers & Clark (Ld.) . .	Southgate Street, Bath . .	1	0	0
Speke, Capt. C. . .	Horton Cross, Ilminster, Somerset . .	1	0	0
Spencer, H. G. . .	Southill House, West Cranmore, Somerset . .	1	0	0
Spencer, W. C. . .	Linton Farm, Tewkesbury . .	1	0	0
Spicer, Capt. . .	Spye Park, Chippenham . .	1	0	0
Spicer, Lady M. . .	Spye Park, Chippenham . .	1	0	0
Spillers and Bakers (Ld) . .	Redcliffe Back, Bristol . .	1	1	0

Name	Residence	Subscriptions		
		£	s.	d.
*†Stanley, E. A. V... ..	.. .. .	..	..	..
Stanley, Col. the Hon. A., D.S.O.	Sopworth, Chippenham, Wilts ..	1	0	0
Stephens, T. A.	Hookstile House, South Godstone, Surrey	1	0	0
Stephenson and Alexander..	Auctioneers, Cardiff	1	1	0
†Stern, Sir Edward D. L. ..	Fan Court, Chertsey .. .. .	..	..	..
Stevens, E.	Chapel Farm, Elmley Castle, Pershore, Worcester	1	0	0
Stevens, R. N.	Woodham Hall, Woking, Surrey ..	1	0	0
Stevenson, J. K. H.	The Chase, Upper Welland, Mal- vern Wells	1	0	0
Stewart, Rev. H. J.	The Vicarage, Cockett, Glamorgan	1	0	0
Stewart Richardson, Major R. M.	Idover House, Dauntsey, Chippen- ham, Wilts	1	0	0
Stilgoe, H. W.	The Grounds, Adderbury, near Banbury, Oxon	1	0	0
Stirling, Mrs... .. .	Trym Bank, Combe Dingle, near Bristol	1	0	0
Stirling, B. W.	Trym Bank, Combe Dingle, near Bristol	1	0	0
Stoddart, F.	The Denny, Portishead, Somerset	1	1	0
Stoffell, W. M.	Fairfield, Newbridge Hill, Bath ..	1	1	0
Storey, H. L.	The Manor House, Malmesbury ..	1	0	0
Storr, Mrs. R.	40, Mecklenburgh Sq., London ..	1	1	0
Storror, J. L... .. .	Tredegar Estate Office, Newport, Mon.	1	0	0
Stothert, Sir P. K., K.B.E.	1, Lansdown Place, West, Bath ..	1	0	0
Stott, F. J.	Wellesley Arms, Wells	1	0	0
†Strachie, Lord	Sutton Court, Pensford, Somerset..	..	..	..
†Strachev, Lt.-Col. the Hon. E.	Sutton Court, Pensford, Somerset..	..	..	..
Strafford, Earl of	Dancers Hill, Barnet	1	0	0
Stranack, Basil	"The Asteria" Poultry Farm, West Littleton, Marshfield, nr. Chippen- ham	1	0	0
Strangways, Miss S... ..	Shapwick Bridgwater	1	0	0
Stratton, Richard	The Duffryn, Newport, Mon. ..	1	0	0
Strauss, E. A.	Kingston Bagpuize, Abingdon, Berks.	1	0	0
Strawson, G. F., J.P.	St. Andrew's Works, Horley, Surrey	1	0	0
Stride, T.	Stanley House, Camden Road, Bath	1	0	0
Strode, G. S. S.	Newnham Park, Plympton	1	0	0
Stucley, H. V. G.	Pillhead, Bideford, North Devon ..	1	0	0
Studley, J. Im.	Dale View, Toller Porcorum, Maiden Newton, Dorchester, Dorset	1	0	0
*Sutton, E. P. F.	Sidmouth Grange, near Reading ..	2	2	0
*Sutton and Sons	Seedsmen, Reading	2	2	0
Swansea, Lord, D.S.O., M.V.O.	Caer Beris, Builth, Breconshire ..	1	0	0

Subscriptions.

ccix

Name.	Residence.	Sub- scriptions.		
		£	s.	d.
Swanwick, Bruce	The Road House, Rodborough Common, Stroud	1	0	0
Swayne, Mrs. G.	Abbeywood, Burnham-on-Sea, Somerset	1	1	0
*Swayne, P. C.	Castle Hill House, Nether Stowey	2	2	0
Sweet, Rev. C. L.	Symondsbury Rectory, Bridport ..	1	0	0
Sweet, Lt.-Col. E. H., C.M.G., D.S.O.	Oaklands, Crowthorne, Berks ..	1	0	0
Sykes, E.	Richings Park, Colnbrook, Bucks ..	1	0	0
Symons, J. & Co. (Ld.) ..	The Plains, Totnes	1	1	0
Tagart, Major-Gen. Sir H., K.C.M.G., C.B., D.S.O. ..	Feniton Court, Honiton, Devon ..	1	1	0
Tangyes (Ld.)	Cornwall Works, Birmingham ..	1	0	0
Tapp, David James	Knaplock, Winsford, Dulverton ..	1	0	0
Tarr, A. H.	Westfield Farm, Chedzoy, Bridgewater	1	0	0
Tate, Mrs. E.	Swinford Lodge, Rugby	1	0	0
Tate, J. A.	Fairfield, Wells, Somerset	1	0	0
Tavener, G. E.	Budlake, Devon	1	0	0
Taylor, A. H. W.	The Old Red House, New Bond Street, Bath	1	1	0
Taylor, E.	The Old Red House, New Bond Street, Bath	1	1	0
Taylor, E. J.	Penarth Lodge, Julian Road, Sneyd Park, Bristol	1	0	0
Taylor, L. Acland	City Librarian, Central Library, Bristol	1	0	0
Taylor, R. B.	Hendford Lodge, Yeovil	1	0	0
Taylor, W. W.	Carmel House, Loose, Maidstone ..	1	0	0
†Tazewell, W. H.	Manor House, Taunton .. ..	..	..	..
*†Temple, Earl	Newton St. Loe, Bristol .. ..	..	..	..
*Thackray, R.	Fords Farm, Calcot, nr. Reading ..	2	0	0
Thomas-Stanford, C.	Preston Manor, Brighton	1	0	0
Thomas, Sir Illtyd	The Mead, Llandaff, Cardiff	1	0	0
Thomas, J.	Velindre, Kidwelly, Carmarthen-shire	1	1	0
Thomas, W. J.	Treskerby, Redruth, Cornwall ..	1	0	0
Thomas & Evans & John Dyer (Ld.)	Swansea	1	0	0
Thompson, C. D.	Wenvoe, near Cardiff	1	0	0
Thompson, Major G. Malcolm	Manor House, Kington, St. Michael, Chippenham	1	0	0
*Thompson, Major C. ..	The Friary, Kings Bromley, Burton-on-Trent	2	2	0
Thompson, V. T.	Norton Manor, Sutton Scotney, Hants	1	0	0
Thornton, H. G.	Warmore, Dulverton	1	1	0
Thornton, W. A. .. ..	.. ..	1	0	0
Thresher, E. B.	Corfe Hill, Weymouth	1	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
Thring, Sir Arthur T. ..	Charlton House, Charlton Mackrell	1	0	0
Thurlow, G. R. ..	Stowmarket	1	0	0
Thynne, Lt.-Col. U. O. ..	Muntham Court, Worthing ..	1	0	0
†Tiarks, H. A. ..	Webbington House, Axbridge, Som.	..	..	..
Tilley, G. Ford ..	Alstone Court, Huntspill, Bridgwater	1	1	0
Tinsley, C. H. ..	Twyford, Pembroge, R.S.O., Herefordshire	1	0	0
Tipper, B. C. and Son ..	Balsall Heath, Birmingham ..	1	0	0
Titt, J. W. ..	Implement Works, Warminster ..	1	0	0
Toogood, E. K. ..	Messrs. Toogood & Sons, Southampton	1	0	0
Tope, H., Jun. ..	Belsford, Harberton, Totnes, Devon	1	0	0
Tory, C. E. ..	Holnest Farm, Sherborne, Dorset	1	0	0
Tory, R. ..	Charisworth Manor, Blandford, Dorset	1	0	0
Tory, R. N. ..	Anderson, Blandford, Dorset ..	1	0	0
Townend, F. ..	Highfield Moor, Allerton, Leeds ..	1	0	0
Trafford, G. R. ..	Hill Court, Ross, Herefordshire ..	1	1	0
Trechmann, Major O. L. ..	Westaway, Barnstaple ..	1	0	0
*Tredegar, Viscount ..	Tredegar Park, Newport, Mon.	2	2	0
Treffry, I. de C. ..	Penarwyn, Par Station ..	1	1	0
Treffry, Mrs. I. de C. ..	Penarwyn, Par Station, Cornwall	1	0	0
Tregoning, Capt. G. N. ..	Bevill's Hill, Bridgerule, near Hols- worthy, N. Cornwall ..	1	0	0
†Tremaine, W. H. ..	Sherborne, Northleach, Glos. ..	..	..	..
Tremayne, Capt. W. F. ..	Carclews, Perran ar Worthal, Truro	1	1	0
Treowen, Major-General Lord	Llanarth Court, Raglan, Mon. ..	1	0	0
Trevethan, W. ..	Brondstone Hill, Chipping Norton	1	0	0
Trevilan, Major M. ..	Curry Rivel, Taunton ..	1	0	0
†Tritton, Mrs. Ida Helena ..	The Rectory, Curry Mallet, near Taunton .. ..	..	..	..
*Trollope-Bellew, Capt. Froude, D.S.O., M.C. ..	Crowcombe Court, Taunton ..	2	0	0
Trotter, Miss ..	Chatley, Norton St. Philip, Bath ..	1	1	0
Trump, W. ..	Borough Farm, Broadclyst, Exeter	1	0	0
Tubbs, Lawrence E. ..	The Priory, Stevenage, Herts ..	1	0	0
Tucker, M. & Sons ..	Broad Quay, Bath ..	1	0	0
Tudway, Lt. L. C. P., D.S.O.	Milton Lodge, Wells ..	1	0	0
Turnbull, F. H., J.P. ..	Lower House Farm, Llantwit Major, near Cardiff ..	1	1	0
Turner, Lt.-Col. C. E. ..	Old Down, Tockington, nr Bristol ..	1	0	0
Turner, P. C. ..	Day's Farm, Wilmington, Kent ..	1	0	0
Turnor, Lt.-Col. W. W. ..	Pinckney Park, Chippenham ..	1	0	0
Tyler, A. T. ..	Highbridge, Somerset ..	1	1	0
Uncles, B. ..	21, Trowbridge Road, Bradford-on- Avon	1	0	0
Upson, J. R. ..	Saracens, Saunders Lane, Woking, Surrey	1	0	0
†Vacher, E. P. ..	Cowfold Lodge, Cowfold, Sussex ..	..	..	..

Name.	Residence.	Subscriptions.		
		£	s.	d.
Veitch and Son	Exeter	1	0	0
Victoria Wagon Works Co. (Ld.)	Bristol	1	1	0
Vickers, D.	Temple Dinsley, Hitchin ..	1	0	0
Vigors, Mrs. A. C.	Ebbor Farm, Wells, Somerset ..	1	0	0
Vigzol Oil Refining Co. ..	Ormskirk	1	0	0
Vine & Co. (Ld.)	Cornhill Chambers, Swansea ..	1	1	0
†Vinson-Thomas, Mrs. Joan	Little Lyndridge, Okehampton, Devon			
Vivian, C. C.	"Craigside," Langland, near Swansea	1	0	0
Waddell, J., J.P.	Ravelston, Tumble, near Llanelly	1	0	0
Waide, W. and Sons	Churn Works, Leeds	1	0	0
Wainwright, C. Donald ..	Summerleaze, Shepton Mallet ..	1	1	0
Waldegrave, Earl	Chewton Priory, Somerset ..	1	0	0
Walker, E. G. F.	The Hollies, Chew Stoke, Bristol ..	0	10	0
Walker, H.	22, Victoria Square, Clifton, Bristol	1	0	0
†Walker, J.	Knightwick Manor, Worcester ..			
*Walker, Lieut.-Col. P. L. E.	Great House, Chipping Sodbury, Glos.	2	0	0
Wallace, W. & R.	Knebworth, Herts.	1	0	0
Wallis and Steevens	North Hants Iron Works, Bas- ingstoke	1	0	0
Ward, R. B.	Godinton, Ashford, Kent	1	0	0
Ward, Hon. Mrs. Bruce ..	Godinton, Ashford, Kent	1	0	0
Warne, J.	Tregonhayne, Tregoney, Gram- pound Road	1	0	0
†Warner, Col. Sir Courtenay, Bart., C.B.	Bretterham Park, Suffolk			
Warren, W. J.	Deacons Farm, Staplegrove, Taunton	1	0	0
Warren & Sons	Corn Merchants, Taunton	1	0	0
Warry, Colonel B.	Shapwick, Bridgwater	1	0	0
Waterloo Mills Cake and Warehousing Co. (Ld.) ..	Wilmington, Hull	1	0	0
Waters, G. W.	Toyds, Salisbury	1	0	0
Watson, H. J.	Hermongers, Rudgwick, Sussex ..	1	0	0
Watson, H. R.	Milborne Wick, Milborne Port ..	1	0	0
Watson, Capt. Hon. T. H.	Cormiston, Milverton, Somerset ..	1	0	0
†Watts, Major E. M.	Eastwood Park, Falfield, Glos. ..			
Watts, Mrs. E.	Eastwood Park, Falfield, Glos. ..	1	0	0
Watts, W.F.G.	Elsfield, Oxford	1	0	0
Weaver & Co.	Beaufort Warehouses, Swansea ..	1	0	0
Webb, E. and Sons	Wordsley, Stourbridge	1	0	0
Webb, Major W. Harcourt	Spring Grove, Bewdley	1	0	0
Weech, J. & Sons	Clevedon, Somerset	1	1	0
Weeks, E.	Wraxall, Shepton Mallet	1	0	0
Weightman, A.	Middle Herrington Farm, Sunderland	1	0	0
Wellesley, Miss	Ford House, Churchinford, Chard	1	0	0
Wenham, J. H.	Witley Manor, Witley, Surrey ..	1	0	0
Wessex Associated News (Ld.)	Westgate Street, Bath	1	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
West, E. P.	Secretary-Manager, University of Bristol Research Station, Long Ashton, Bristol	1	0	0
Westlake, W. J.	Godwell Farm, Ivybridge, S. Devon	1	0	0
Westminster, Constance Duchess of	Hazelgrove, Sparkford, Somerset ..	1	0	0
Weston, H. and Sons	The Bounds, Much Marcle, <i>via</i> Dymock, Herefordshire ..	1	0	0
Weymouth, Viscount	Milton Mill, Steventon, Berks ..	1	0	0
†Wheatley, Major C. J. H. ..	Berkswell Hall, near Coventry ..	..	..	..
Whitburn, C. W. Sofer	Amport, Andover, Hants. ..	1	0	0
Whitburn, Mrs. Sofer	Amport, Andover, Hants. ..	1	0	0
†White, A. R., O.B.E.	Charnage, Mere, Wilts ..	..	..	..
White, F.	Torweston, Williton ..	1	0	0
White, Mrs. F.	Brookover Farm, near Frome ..	0	10	0
*†White, Sir G. Stanley, Bart.	Hollywood Towers, near Bristol ..	..	..	..
White, J. H.	Bagborough Farm, Shepton Mallet ..	1	1	0
White, S. T.	Stock Dennis Farm, Ilchester ..	1	0	0
White, W. J. S.	Zeals Park, Wiltshire ..	1	0	0
White, W. & Son	Pool Farm, Taunton ..	1	0	0
White, W. G. & Sons	Larbourne Farm, Iver, Bucks. ..	1	0	0
Whitehead, A. J.	Lydford Park Farm, West Lydford ..	1	0	0
Whitehead, J.	Lower Hill Farm, Butleigh, Glastonbury	1	0	0
Whitley, G.	Red House, Cannington, Bridgewater	1	1	0
Whitley, S. R.	Rookwood, Shinfield, Reading ..	1	0	0
Whitley, W. and H.	Primley Farm, Paignton ..	1	0	0
Whitting, C. E.	Uphill Grange, Weston-super-Mare ..	1	1	0
Wigan, E. A.	Conholt Park, Andover ..	1	1	0
*Wight-Boycott, Capt. Hubert	Oakhampton Manor, Wiveliscombe, Somerset	2	2	0
Wilkin, Vice-Admiral H. ..	Corsley House, Warminster ..	1	0	0
Willcox, W. H. & Co.	36, Southwark Street, London, S.E.1	1	0	0
†Williams, A. M., M.P.	Werrington Park, Launceston ..	..	..	..
Williams, C., M.P.	Greenway, Churston Ferrers, South Devon	1	0	0
Williams, G. L.	Chavenage, Tetbury ..	1	1	0
Williams, G. P.	Scorrier, Cornwall ..	1	0	0
Williams, J.	Scorrier House, Scorrier, Cornwall ..	1	0	0
Williams, J. C., M.P.	Werrington Park, Launceston ..	1	0	0
†Williams, M. Scott	Woolland House, Blandford ..	..	..	..
Williams, O.	Crossways, near Cowbridge, Glam. ..	1	0	0
Williams, P. D.	Lanarth, St. Keverne ..	1	1	0
*†Williams, P. F. C.	Glen Side, Leigh Woods, Bristol ..	..	..	..
Williams, P. M.	Caerhayes Castle, St. Austell Cornwall	1	0	0
†Williams, Col. Sir Robert, M.P.	Bridehead, Dorchester ..	..	..	..
Williams, W.	Brynceclin, Sennybridge, Breconshire	0	10	0

Subscriptions.

ccxiii

Name.	Residence.	Subscriptions.		
		£	s.	d.
Williams, W. H.	The Oaks, Hewish, near Bristol ..	1	1	0
Williamson, Dr. S.	Chilean Nitrate Committee, Friar's House, New Broad Street, London, E.C.2.			
Wills, A. Stanley	21, Royal Crescent, Bath	1	0	0
*Wills, Capt. A. S.	Thornby Hall, Thornby, Northampton	2	0	0
Wills, Sir Frank	Bristol	1	0	0
Wills, Sir G. A., Bart. ..	Burwells, Leigh Woods, Bristol ..	1	0	0
Wills, Sir Gilbert A. H., Bart.	Batsford Park, Moreton-in-Marsh, Glos.	1	0	0
*Wills, W. D. & H. O. ..	Bedminster, Bristol	2	0	0
Wills, W. Melville	Estate Office, Bracken Hill, Leigh Woods, near Bristol	1	0	0
Wills, W. D. Melville ..	Barley Wood, Wrington, nr. Bristol ..	1	0	0
Willson, Stephen	Canadian Pig Powder Factory, Peterborough	1	0	0
Wilmot, R. M.	British Oil and Cake Mills, Brooklyn, Sidcup, Kent	1	0	0
Wilmot, S. M. and Co. ..	Albert Road, St. Philip's Marsh, Bristol	1	1	0
Wilson, R. W.	Chewton Mendip	1	0	0
Wiltshire Creameries (Ld.) ..	Milk and Corn Factors, Chippenham ..	1	1	0
Winstone, G.	Parsonage Farm, Butleigh, Glastonbury	1	0	0
Winstone, S. W.	Racecourse Farm, Portbury	1	0	0
Winter, Major F. J.	Canok Lodge, Walton-by-Clevedon, Somerset	1	0	0
Winterson, A. L.	Atterton, nr. Pershore, Worcester ..	1	0	0
†Winterton, Earl, M.P. ..	4, Milton Street, Grosvenor Place, London, S.W.			
Wise, A. G.	Hampton House, Brislington, Bristol ..	1	1	0
Withers, R.	Caswell Farm, Clapton, Portishead ..	1	0	0
Withers, W. R.	Lower Court Farm, Long Ashton, Bristol	1	0	0
Wood, Capt. G., M.C.	Somerset Light Infantry, Drill Hall, Lower Bristol Road, Bath	1	0	0
Woodhouse, Lt.-Col. S. H. ..	Carnons House, Taunton	1	0	0
*Woodley, W. A.	2, Elmsleigh Road, Weston-super-Mare	2	2	0
Woolland, W.	Baydon Manor, Ramsbury, Wilts ..	1	0	0
Wootton, J. H.	Byford, Bridge Tollers, Hereford ..	1	0	0
*†Wraxall, Lord	Tyntesfield, Bristol	1	0	0
Wyatt, J. J.	Poundsbury Farm, Dorchester ..	1	0	0
†Wynford, Lt.-Col. Lord, D.S.O.	Wynford House, Maiden Newton, Dorchester			
Wynford, Lady	Wynford House, Maiden Newton, Dorchester	1	0	0

Name.	Residence.	Sub- scriptions.		
		£	s.	d.
Yates, Major S. P.	Broughton Grange, Banbury	1	0	0
Yeatman-Biggs, W. H.	Long Hall, Stockton, Codford, Wilts	1	0	0
Yeo Bros., Paull & Co. (Ld.)	134, Victoria Street, Bristol	1	0	0
Yorke, Mrs.	Peter's Farm, near Chippenham, Wilts	1	0	0
Yorworth, Capt. T. J.	65, High Street, Cowbridge, Glamorgan	1	0	0
Young, E. A.	Mangotsfield, Bristol	1	0	0
Young, G. H.	Rodway Hill House, Mangotsfield, Glos.	1	1	0
Zacharias, J. & Co.	Oxford	1	0	0
Zambra & Milne	West Tisted Manor, Ropley, Hants.	1	0	0

(9)

Total 1185

INDEX.

ABNORMAL STRAWBERRY PLANTS, 228
 Acidity of Poor Pastures, 129
 Acid Soils and Sugar Beet, 91
 Agricultural Education, Bath, 154
 Analyses of Cider at Bath, 168
 —, Members' Privileges, cxxv
 Angle Shades Moth, 84
 Annual Report of Consulting Chemist, 253
 Aphides in Glasshouses, 73
 Assets and Liabilities, Society's, clxxx

 BARKER, B. T. P., on Cider and Perry Orchards, 192
 — — on National Fruit and Cider Institute, 177
 — — on Relations of Scion and Root Stock, 235
 Bastin, S. L., on Weed Destruction, 17
 Bath Exhibition, F. H. Storr on, 133
 Bath Meeting, Awards, iv
 — — Financial Result, clxxxi
 — — Judges, i
 Berkeley Sq. Advisory Centre, 188
 Broom-rape, Destruction of, 25
 Butter Tests, Bath, 142

 CALCIUM CYANIDE & SUGAR BEET, 97
 Capsid Bugs, 82
 Cash Account, Society's, clxx
 Cattle Awards, Bath, xxi
 Cauliflower disease of Strawberries, 230
 Centipedes in Glasshouses, 65
 Chafer Larvae in Glasshouses, 63
 Charlock, Destruction of, 25
 Chew, A. H., on Small Holdings, 170
 Chrysanthemums, Insect Pests of, 80
 — Leafminer, 87
 — Midge, 85

Cider Awards, Bath, xc
 — and Perry Orchards, 192
 — Exhibition at Bath, 166
 — Making Trials, 206
 — Making Trials 1926-27.
 O. Grove on, 210
 Coltsfoot, Destruction of, 26
 Committees, Standing, 4
 Couch, Destruction of, 27
 Council, Members of Society's, 3
 Cundall, H. M., on Education Department, 154

DAIRY AWARDS, BATH, xci
 — Bacteriology, 160
 — Department, Bath, 138
 Docks and Sorrel, Destruction of, 27
 Dodder, 28
 Dorchester Meeting, Prize List, cxxix

EELWORM IN CHRYSANTHEMUMS, 88

FARM ORCHARDING, 157
 Farwell, E. W., on Cider at Bath, 166
 Financial Statements, clxvii
 Forestry Commission, 150
 — Department, Bath, 148
 — —, Oxford, 153
 Fruit Soil Survey, 191

GENERAL LAWS, SOCIETY'S, cxix
 Goat Awards, Bath, lxviii
 — Milk Tests, Bath, 144
 Grassland Improvement, 154, 158
 Grove, O., on Cider Making Trials, 1926-27, 210
 —, on Trial Cider and Perry Orchards, 192

HOBHOUSE, A. L., ON THE EDUCATION DEPARTMENT, 154

Horse Awards, Bath, iv

IMPROVEMENT OF POOR PASTURES, 109

— — —, Summary Results, 123

Insect Pests of Tomatoes and Chrysanthemums, 61

LEATHER JACKETS IN GLASSHOUSES, 64

Liability of Occupiers, Meston on, 36

Licencees, Liability towards, 38

Lime on Poor Pastures, 126

Limnaea Truncatula, 51

— — —, Control of, 54

Ling, A. W., on Improvement of Poor Pastures, 109

Lipscomb, G., on Forestry at Bath, 148

Liver Fluke, 45

— — — Symptoms, 57

— — — Rot, Outbreaks of, 44

— — — Rot, Walton and Wright on, 43

Live Stock Entries, Bath, 135

Long Ashton Research Station, 177

Long, H. C., on Lucerne, 7

Lucerne Composition, 10

— — —, Cultivation of, by H. C. Long, 7

— — — in England, 9

— — — Meal, 11

— — — Soils, 12

MEALYBUGS IN GLASSHOUSES, 70

Members, List of, clxxxii

Membership Privileges, cxvii

Meston, Hon. D., on Liability of Occupiers, 36

Miles, H. W., on Insect Pests, 61

Milk Tests, Bath, 140

NATIONAL FRUIT AND CIDER INSTITUTE, 177

Nettles, Destruction of, 28

Nitrate of Soda on Sugar Beet, 98

Nitrogen Requirements for Sugar Beet, 96

OFFICERS, LIST OF SOCIETY'S, 1

PERRY ORCHARDS, TRIAL, 192

Phosphates for Sugar Beet, 102

— — — on Poor Pastures, 124

Pickford, P. T. H., on Trial Cider and Perry Orchards, 192

Pig Awards, Bath, lxxii

Potash for Sugar Beet, 100

Poultry Awards, Bath, xcvi

RABBIT AWARDS, BATH, cxiv

Ragwort, Destruction of, 29

Red Plant of Strawberries, 224, 230

Red Spider, 76

Relations of Scion and Rootstock, Barker on, 235

Root and Crown Rot of Strawberries, 233

Root Knot Eelworm, 66

SCION AND ROOT STOCK; RELATIONS, 236

— — — Variety and Root Growth of Apples, 245

Seed Testing, 32

Sheep Awards, Bath, lx

Shoeing Awards, Bath, xcvi

Small Holdings Competition, Bath, 170

Snails, Hosts of Liver Fluke, 50

Society's General Operations, Annual Report on, 172

Somerset Education Committee, 163

Somerset Farm Institute, 154

Somerville, A. F., on Dairy Department, 138

Strawberries, Abnormal Forms, 228

Strawberry Investigations Report, 221

— — — Plants, Growth of, 161

Storr, F. H., on Annual Report, 172

— — —, on Bath Exhibition, 133

Sugar Beet, Compound Manures, 105

— — —, Continental Practice, 107

— — —, Manuring of, Thomas on, 89

— — — Soils, 90

- | | |
|--|---|
| <p>Swarbrick, T., on Scion Variety and Root Growth, 245</p> <p>THISTLES, DESTRUCTION OF, 30</p> <p>Thrips in Glasshouses, 67</p> <p>Thomas, Brynmor, on Manuring of Sugar Beet, 89</p> <p>Tomatoes, Insect Pests of, 62</p> <p>Tomato Moth, 74</p> <p>Trepassers, Liability towards, 37</p> <p>VOELCKER, DR. J. A., ANNUAL REPORT, 253</p> | <p>WALLACE, T., ON IMPROVEMENT OF POOR PASTURES, 109</p> <p>Walton, C. L., on Liver Rot, 43</p> <p>Weed Destruction, Bastin on, 17</p> <p>Weeds, Damage by, 18</p> <p>—— Destruction, Compulsory Powers, 36</p> <p>——, Distribution of, 19</p> <p>——, Strength of European, 17</p> <p>White Fly in Glasshouses, 71</p> <p>Wireworms in Glasshouses, 62</p> <p>Woodlice, Control of, 78</p> <p>Wright, W. Rees, on Liver Rot, 43</p> <p>YEAST FERMENTATION TRIALS, 219</p> |
|--|---|

END OF VOLUME II.

BATH:

PRINTED BY THE "CHRONICLE AND HERALD" PRESS, 33, WESTGATE STREET.

BREEDERS' DIRECTORY.

HORSES.

HOLDEN, WM., CHEVIN, BELPER,
DERBYSHIRE. Hackney Stallions,
Mares, Harness Horses and Young
Stock, by leading sires for sale.
Stallions for export a speciality.

Arabs.

ENTRY FORMS for Arab Horse Stud
Book, Vol. IV; and for Arab-bred
Register for the produce of Stallions
or Mares entered in Stud Book; and
Application Forms for Membership
will be sent by the Secretary, Rev.
D. B. Montefiore, 15, Wyndham
Street, Brighton.

HURTLEY, EDWARD, CROWBOROUGH
WARREN, SUSSEX. Breeder of Arab
Horses, Polo Ponies, Sussex Cattle.
Station: Crowborough, L.B. & S.C.
Ry.

Barb.

MEDCALF, MAJOR S. A., AYLANDS,
WALTHAM CROSS, HERTS. Stud
Horses: Menebhi. and Arab Stallion,
Shir-ul-Harakah. Young stock by
the above Stallions, broken to saddle
and harness, for sale.

Clydesdales.

MEDCALF, MAJOR S. A., AYLANDS,
WALTHAM CROSS, HERTS. Breeder
of pedigree Clydesdales of weight
and substance. Stallions at service
and for hire. Stallions, mares, and
fillies usually for sale.

Shires.

STERN, SIR EDWARD, FAN COURT,
CHERTSEY, SURREY. — Stallions,
Mares and Fillies usually for Sale.
Many prize-winners.—For all par-
ticulars, apply the Bailiff, Fan Court,
Chertsey, Surrey.

HORSES—continued.

Suffolks.

BAWDSEY HALL STUD. Property of
Sir Cuthbert Quilter, Bart. Numer-
ous first and champion prizes. Mares,
Stallions and Geldings for sale.—T. A.
Crombie, Bawdsey Estate Office,
Woodbridge.

PONIES.

Polo.

BRIGHT HERBERT, THE COVE, SILVER-
DALE, NR. CARNFORTH. Telegrams
and Telephone, Silverdale 19.
Stallions: Silverdale Cheerio, First
and Gold Medal and Reserve Cham-
pion. N.P. Show, 1926. Sire of
winners of Produce Class, 1927.
Jazz Band Champion Cup for best
colt or stallion, N.P. Show, 1926.
Silverdale Loyalty, reserve in Open
Stallion Class, 1927. Other awards
at N.P. Show, 1927: First, Yearling
Colt, First and Second 2yr. old Colts.
First for Dams' Produce awarded to
Bowery. R.A.S.E. Newport Show,
First Prize yearling.

Dartmoor.

VINSON-THOMAS, MRS., OKEHAMPTON,
DEVON. For sale, Dartmoor Ponies
from champion stock; Children's
Ponies specially bred and broken.
Well-bred young Polo Ponies. Ponies
can be seen and tried by appoint-
ment.—Apply, SECRETARY OF STUD
GROOM.

CATTLE.

SMALL OR HEAVY STORE HEIFERS OR
BULLOCKS, YOUNG DRAPES, large
and small size in-calf cows, different
breeds, Kerry and Dexters, pure
bred; bullock and heifers, large and
small weights, for immediate killing,
in prime condition; delivered any
station in England.—Courtenays,
Victuallers, Kenmare.

BREEDERS' DIRECTORY.

CATTLE—*continued.*

THE BUCKLAND MANOR HERD.

Founded in 1912. Supreme Champion, R.A.S.E., and Highland and Agricultural Society, Scotland, 1919 and 1920; also Baby Beef Champion, Smithfield, 1924. All animals in herd have recently passed Tuberculin Test. Young Bulls for sale.—C. T. SCOTT, Buckland Manor, Broadway, Worcestershire.

Aberdeen-Angus.

GRANT, J. C., GARVAULT, ADVIE. Select herd of Aberdeen-Angus Cattle. Bulls and Heifers always for sale.

Devons.

ENMORE CASTLE PEDIGREE DEVON CATTLE. Best strains only. Enquiries solicited.—H. H. Broadmead, or Steward, Enmore Castle, Nr. Bridgwater.

WERRINGTON PARK HERD OF DEVONS. Young Bulls and Heifers for Sale. Inspection and Correspondence Invited.—A. M. Williams, Launceston, Cornwall.

Guernseys.

CURRIE, ALICK C. Ped'gree Guernseys. Milk records kept. White Turkeys. White Wyandottes. Tel. 34. Old Place, Mayfield, Sussex.

Jerseys.

JEROME, MRS. KINETON, WARWICKSHIRE. Pedigree Jerseys. Cows, Heifers, Young Bulls for sale.

STERN, SIR E. D., BART., FAN COURT, CHERTSEY, SURREY. Herd of Pedigree Jersey Cattle, which have passed the tuberculin test. Many prize-winners. Bulls, Cows and Heifers for sale.

CATTLE—*continued.*

Kerry.

PALMER, CAPTAIN RICHARD ELLIOTT. The O.P.H. (Registered prefix), Oaklands Park Herd, Newdigate, Surrey. Pure Pedigree, Registered Kerry Cattle, prize-milking, butterfat, record strains, type breeding. The champion economic milk producer of the World.—Apply, the Foreman.

Dairy Shorthorns.

FULLER, MAJOR ROBERT, GREAT CHALFIELD, MELKSHAM. Pedigree Dairy Shorthorns. Producer of "Certified Milk" Official Milk Records. Bull calves from 1,000-gallon Cows for sale. Tuberculin Tested. Prizes, 1927, Three Counties, Wiltshire, Bath and West and Royal Shows. Enquiries invited.

IWERNE MINSTER HERD of Pedigree Dairy Shorthorns, fashionable blood, combining milk and flesh to an unusual degree; daily milk records, butterfat tests; inspection invited.—Estate Office, Iwerne Minster, Blandford.

Lincoln Red Shorthorns.

STAPLEFORD PARK HERD OF LINCOLN RED SHORTHORNS. A few young Bulls for sale, from tested milkers under supervision.—Apply, C. S. Harvey, Wymondham, Oakham.

SHEEP.

Lincoln Longwools.

BROCKLEBANK, JOSEPH, CARLTON-LE-MORELAND, LINCOLN. Pure-bred Lincoln Longwool Flock No. 10. Large number sold for export every year. Given satisfaction both at home and abroad. Inspection invited. Telegrams: Bassingham. Station: Navenby.

BREEDERS' DIRECTORY.

HORSES.

HOLDEN, WM., CHEVIN, BELPER,
DERBYSHIRE. Hackney Stallions,
Mares, Harness Horses and Young
Stock, by leading sires for sale.
Stallions for export a speciality.

Arabs.

ENTRY FORMS for Arab Horse Stud
Book, Vol. IV; and for Arab-bred
Register for the produce of Stallions
or Mares entered in Stud Book; and
Application Forms for Membership
will be sent by the Secretary, Rev.
D. B. Montefiore, 15, Wyndham
Street, Brighton.

HURTLEY, EDWARD, CROWBOROUGH
WARREN, SUSSEX. Breeder of Arab
Horses, Polo Ponies, Sussex Cattle.
Station: Crowborough, L.B. & S.C.
Ry.

Barb.

MEDCALF, MAJOR S. A., AYLANDS,
WALTHAM CROSS, HERTS. Stud
Horses: Menebhi. and Arab Stallion,
Shir-ul-Harakah. Young stock by
the above Stallions, broken to saddle
and harness, for sale.

Clydesdales.

MEDCALF, MAJOR S. A., AYLANDS,
WALTHAM CROSS, HERTS. Breeder
of pedigree Clydesdales of weight
and substance. Stallions at service
and for hire. Stallions, mares, and
fillies usually for sale.

Shires.

STERN, SIR EDWARD, FAN COURT,
CHERTSEY, SURREY. — Stallions,
Mares and Fillies usually for Sale.
Many prize-winners.—For all par-
ticulars, apply the Bailiff, Fan Court,
Chertsey, Surrey.

HORSES—continued.

Suffolks.

BAWDSEY HALL STUD. Property of
Sir Cuthbert Quilter, Bart. Numer-
ous first and champion prizes. Mares,
Stallions and Geldings for sale.—T. A.
Crombie, Bawdsey Estate Office,
Woodbridge.

PONIES.

Polo.

BRIGHT HERBERT, THE COVE, SILVER-
DALE, NR. CARNFORTH. Telegrams
and Telephone, Silverdale 19.
Stallions: Silverdale Cheerio, First
and Gold Medal and Reserve Cham-
pion. N.P. Show, 1926. Sire of
winners of Produce Class, 1927.
Jazz Band Champion Cup for best
colt or stallion, N.P. Show, 1926.
Silverdale Loyalty, reserve in Open
Stallion Class, 1927. Other awards
at N.P. Show, 1927: First, Yearling
Colt, First and Second 2yr. old Colts.
First for Dams' Produce awarded to
Bowery. R.A.S.E. Newport Show,
First Prize yearling.

Dartmoor.

VINSON-THOMAS, MRS., OKEHAMPTON,
DEVON. For sale, Dartmoor Ponies
from champion stock; Children's
Ponies specially bred and broken.
Well-bred young Polo Ponies. Ponies
can be seen and tried by appoint-
ment.—Apply, SECRETARY OF STUD
GROOM.

CATTLE.

SMALL OR HEAVY STORE HEIFERS OR
BULLOCKS, YOUNG DRAPES, large
and small size in-calf cows, different
breeds, Kerry and Dexters, pure
bred; bullock and heifers, large and
small weights, for immediate killing,
in prime condition; delivered any
station in England.—Courtenays,
Victuallers, Kenmare.

BREEDERS' DIRECTORY.

CATTLE—*continued.*

THE BUCKLAND MANOR HERD.

Founded in 1912. Supreme Champion, R.A.S.E., and Highland and Agricultural Society, Scotland, 1919 and 1920; also Baby Beef Champion, Smithfield, 1924. All animals in herd have recently passed Tuberculin Test. Young Bulls for sale.—C. T. SCOTT, Buckland Manor, Broadway, Worcestershire.

Aberdeen-Angus.

GRANT, J. C., GARVAULT, ADVIE.
Select herd of Aberdeen-Angus Cattle.
Bulls and Heifers always for sale.

Devons.

ENMORE CASTLE PEDIGREE DEVON CATTLE. Best strains only. Enquiries solicited.—H. H. Broadmead, or Steward, Enmore Castle, Nr. Bridgwater.

WERRINGTON PARK HERD OF DEVONS. Young Bulls and Heifers for Sale. Inspection and Correspondence Invited.—A. M. Williams, Launceston, Cornwall.

Guernseys.

CURRIE, ALICK C. Ped'gree Guernseys. Milk records kept. White Turkeys, White Wyandoites. Tel. 34. Old Place, Mayfield, Sussex.

Jerseys.

JEROME, MRS. KINETON, WARWICKSHIRE. Pedigree Jerseys. Cows, Heifers, Young Bulls for sale.

STERN, SIR E. D., BART., FAN COURT, CHERTSEY, SURREY. Herd of Pedigree Jersey Cattle, which have passed the tuberculin test. Many prize-winners. Bulls, Cows and Heifers for sale.

CATTLE—*continued.*

Kerry.

PALMER, CAPTAIN RICHARD ELLIOTT. The O.P.H. (Registered prefix), Oaklands Park Herd, Newdigate, Surrey. Pure Pedigree, Registered Kerry Cattle, prize-milking, butterfat, record strains, type breeding. The champion economic milk producer of the World.—Apply, the Foreman.

Dairy Shorthorns.

FULLER, MAJOR ROBERT, GREAT CHALFIELD, MELKSHAM. Pedigree Dairy Shorthorns. Producer of "Certified Milk" Official Milk Records. Bull calves from 1,000-gallon Cows for sale. Tuberculin Tested. Prizes, 1927, Three Counties, Wiltshire, Bath and West and Royal Shows. Enquiries invited.

IWERNE MINSTER HERD of Pedigree Dairy Shorthorns, fashionable blood, combining milk and flesh to an unusual degree; daily milk records, butterfat tests; inspection invited.—Estate Office, Iwerne Minster, Blandford.

Lincoln Red Shorthorns.

STAPLEFORD PARK HERD OF LINCOLN RED SHORTHORNS. A few young Bulls for sale, from tested milkers under supervision.—Apply, C. S. Harvey, Wymondham, Oakham.

SHEEP.

Lincoln Longwools.

BROCKLEBANK, JOSEPH, CARLTON-LE-MORELAND, LINCOLN. Pure-bred Lincoln Longwool Flock No. 10. Large number sold for export every year. Given satisfaction both at home and abroad. Inspection invited. Telegrams: Bassingham. Station: Navenby.

BREEDERS' DIRECTORY.

SHEEP—continued.

Oxford Downs.

FULLER, MAJOR ROBERT, GREAT CHALFIELD, MELKSHAM. Flock Number 385, Oxford Down Sheep. Prizes 1927. Oxford, Bath & West and Royal Shows. Enquiries invited.

Suffolks.

FOSTER, G. R. C., TRUMPINGTON, CAMBS No. 700. Prizes in 1924:—R.A.S.E. Show, Leicester, First and Champion Ram Lambs, Second Ewe Lambs, Third Single Ram Lamb. 1925.—Second Prize Ram Lamb at Ipswich Sale, which realised 155 gns.

PIGS.

Berkshires.

LEADENHAM HERD OF BERKSHIRE PIGS, the property of CAPTAIN JOHN S. REEVE, LEADENHAM, NR. LINCOLN. This herd was started five years ago and has bred such noted winners as Leadenham Duke 1st and Supreme Champion at the Royal, 1925 and 27. Also other winners, 1st and Champion at the Lincolnshire in 1925, also 2nd at Royal, 1926, and many others. The Pigs are reared in the open, thus having hardy and sound constitutions coupled with the best Pedigrees. Apply to S. F. Beeden, The Bailiff, Home Farm, Leadenham, Nr. Lincoln.

THE SPRINGWELL HERD OF PEDIGREE BERKSHIRE PIGS. Boars and Gilts generally for sale.—Apply Burrowes, Springwell House, Saffron Walden, Essex. Station Great Chesterford, L.N.E.R. Telephone: Saffron Walden 109.

PIGS—continued.

THICKET PRIORY HERD, the property of Lieut.-Col. J. A. DUNNINGTON-JEFFERSON, D.S.O. High-class young Boars and Gilts on sale, all of the celebrated Lunn family.—Apply to Andrew Moscrop, Thorganby Hall, York.

Middle White.

THE COMPTON HERDS. We have some grand in-pig and empty Middle White Gilts and some useful Boars; come and see them, no fancy prices asked. S. Bide & Sons, Ltd., Farnham, Surrey.

HOPE-WOOD HERD. Open air registered Middle White Pigs. Bred in the open for length and quality. Stock always for sale at very moderate prices. Enquiries invited. Apply Owner, H. Cecil Nash, Hope Wood, Shepherds Well, Dover, Kent.

STAPLEFORD PARK HERD OF MIDDLE WHITE PIGS. A few Gilts and Boars from carefully selected stock.—Apply C. S. Harvey, Wymondham, Oakham.

STEPHENS, HAVELOCK, NETHERBY GRANGE, BERKHAMPTON, HERTFORDSHIRE. Breeder of Pedigree Middle White Pigs, Sows, Boars and Gilts bred from prize winners for sale. (Netherby Herd), 'Phone Cholesbury 4.

Large Black.

CURRIE, ALICK C. Pedigree Black Pigs; free grass run; strains, healthy, hardy. Reared. Prices.—Old Place, Mayfield, St.

BREEDERS' DIRECTORY.

PIGS—continued.

Large White.

TRESKERBY HERD OF PEDIGREE LARGE WHITE PIGS. Boars and Gilts, from prize-winning strains always for sale.—W. J. Thomas, Treskerby, Redruth, Cornwall.

Tamworths.

BERKSWELL HERD, Owner, MAJOR C. J. R. WHEATLEY, BERKSWELL HALL, WARWICKSHIRE, winner at Royal and each time shown in 1927. Boars and Gilts for sale and export. Also Shropshire Sheep. Prizes gained by this flock at Royal, Three Counties, Shropshire and West Midland, etc., Shows.

POULTRY

Dorkings.

MAJOR. ARTHUR J.—Breeder and exhibitor thirty years Champion Dark and Silver Grey Dorkings, "England's best fowl." Prizes at all Shows and exported all over the world. Prices moderate. Eggs, 1/9 each.—Arthur J. Major, Ditton, Langley, Bucks.

Peafowls and Swans.

PEAFOWLS AND SWANS. Largest stock in England, all ages. Exporter to all parts. Particulars.—R. Wheadon, Ilminster, Somerset.

Pheasant Fowl.

JEROME, MRS., KINETON, WARWICKSHIRE, O.E. Pheasant Fowl. Prize-winning stock; prolific layers; fine table birds; non-sitters.

GOATS.

SKIDMORE, MISS E., ASHLEY LEIGH, BOX, WILTS. Phone, Box 9. British Saanen, Goats, Goatlings and Kids for sale. Officially recorded by the N.W. Wilts Milk Recording Society. At Stud: Imported Champion Saanen Schnappes.

AUCTIONEERS.

BASINGSTOKE, READING AND HENLEY-ON-THAMES. SIMMONS & SONS, Auctioneers, Valuers. Insurance Agents, Sales of every description conducted in any part of the country. Speciality—Farm Stock Sales and Valuations. Farms and Estates managed.

KITTO AND SON, J., F.A.I., LAND AGENTS AND AUCTIONEERS, LAUNCESTON, CORNWALL. Branch Office, Callington. Hon Secs., Launceston, Agricultural and Fat Stock Societies.

NORTHALLERTON AUCTIONS, LTD. Cattle Salesmen. Auctioneers. Valuers.—Cattle Sales every Wednesday. Horse Sales monthly.

WYATT & SON, CHICHESTER AND HAVANT, Auctioneers and Valuers. Markets: Chichester, alternate Wednesdays; Havant, every Tuesday. Tenant-right Valuers. Farms and Estates managed. Established 1826.

WHITE SCOUR IN CALVES.

Owners of herds who have been troubled by white scour in the past would do well to read the official report on this disease and its successful treatment, recently issued by the advisory expert of the British Friesian Cattle Society. This authority carried out a number of tests with a new drug, which had previously been very favourably reported on, and obtained 100 per cent. success, all the calves treated making a rapid recovery within two to four days. The treatment referred to as being simple to administer without expert assistance, and very economical in cost. Copies of this report may be obtained from the printers, Messrs. Geo. H. Hine, 21, Bush Lane, E.C.4, free of charge on application.

FOR YOU AND
OR YOUR SONS
SETTLEMENT IN
SOUTHERN RHODESIA

Provides real opportunities in a young self-governing
BRITISH COLONY where

TAXATION IS LIGHT
GOOD LAND IS CHEAP

*Genial Climatic and Social Conditions prevail, and GREAT
AGRICULTURAL and MINERAL WEALTH await Development.*

SCHEMES FOR SETTLEMENT ON THE LAND.

Address enquiries : SECRETARY

High Commissioner for Southern Rhodesia
CROWN HOUSE, ALDWYCH, LONDON, W.C.2.

Guaranteed Pure COD LIVER OIL For Feeding
CATTLE, HORSES, PIGS AND POULTRY.

All qualities absolutely Lowest Prices. Wholesale only.

JOB IVORY & CO., Ltd. (Formerly Job Brothers),
TOWER BUILDING, WATER ST., LIVERPOOL.

Telegraphic Address "JOB LIVERPOOL." Telephone. CENTRAL 1039
FISHERS, REFINERS, IMPORTERS. Established 1780. The Oldest Firm in the Trade.



TRADE MARK

MARS OIL **BRITISH MADE.**

For Softening, Preserving and Waterproofing
BOOTS, LEGGINGS, HARNESS, SADDLERY, Etc.
An excellent Dressing for Machine Belting.

No "Rubbing In" Required. AVOID SPURIOUS IMITATIONS.
As supplied to the Ministry of Munitions, H.M. Dockyards
Military Units, Sportsmen and Farmers.

In Tins with Brush complete, at 1/6 and 3/-, or 2/- and 3/6 post free.
Half-Gallon Cans 11/6 post free. One-Gallon Cans 18/- carriage forward.

To be had of Boot Makers, Saddlers and Hardware Dealers, etc., or direct from

The Mars Oil (W.Y.) Co., 10 & 12 Milton St., London, E.C.2 Proprietor,
F. GREENH.

